OCTOBER, 1939

Soap

"My wife would like to talk with the clerk who sold me this bottle of energy elixir!"

Maybe you can put a little extra punch in your production through the use of

NIAGARA CAUSTIC POTASH

Fine results can be obtained, too, with Niagara Caustic Soda and Niagara Carbonate of Potash.

Soap and Sanitary Chemicals

Reg. U. S. Pat. Office

Volume XV
Number 10

OCTOBER
1939

SANITARY Products Section, which forms a part of every issue of SOAP, begins on page 71.

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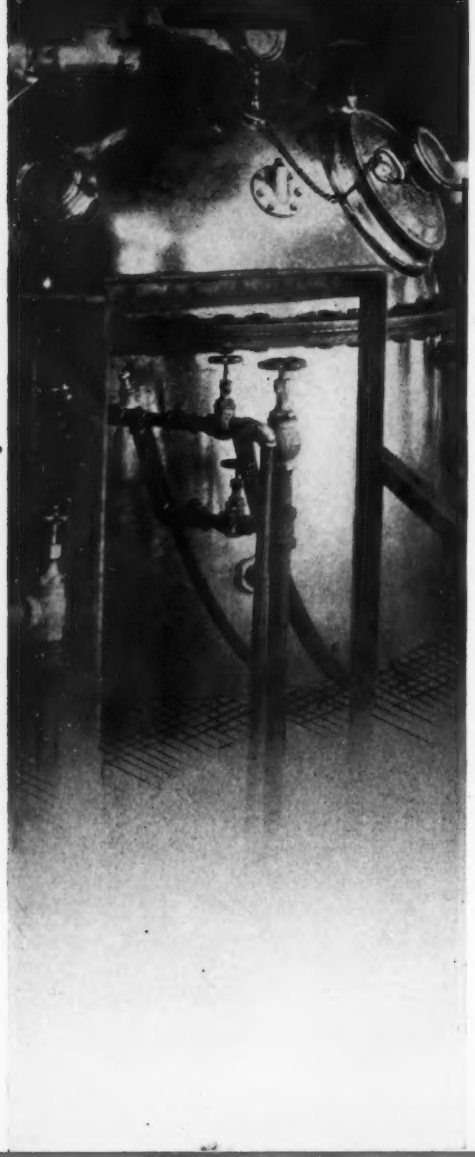

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As the shortage of natural essential oils becomes progressively more acute and prices rise accordingly, the soap maker, among others, will lean more and more to the use of synthetic aromatic chemicals of American manufacture, produced from raw materials of American or unrestricted origin for his perfumery.

At our Brooklyn factory we produce a comprehensive line of aromatic chemicals for use in soap perfumery. Rigid technical control insures uniform, dependable quality, and quantity production is your guarantee of attractive price.

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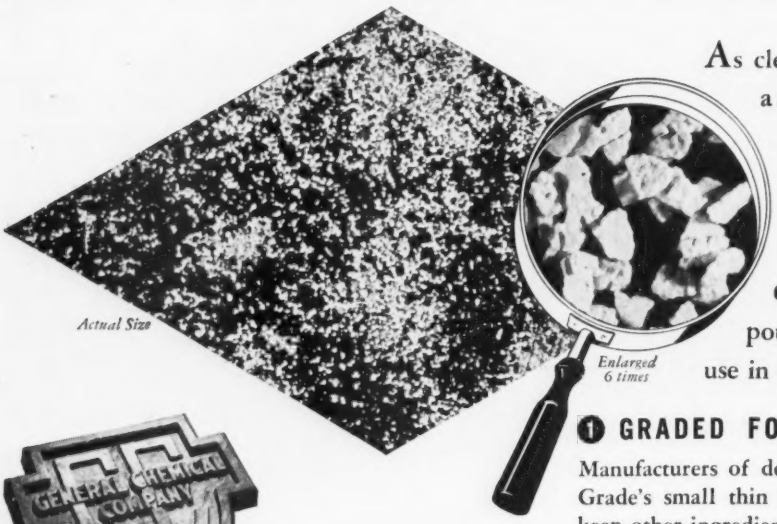

As clearly as possible, without attaching a sample of DIAMOND GRADE TETRASODIUM PYROPHOSPHATE to the page, these unretouched photomicrographs (actual size and six times enlarged), show why this General Chemical Company compound is especially advantageous for use in detergent mixtures.

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Manufacturers of detergent mixtures realize that Diamond Grade's small thin flakes—made just the right size—help keep other ingredients from settling in the package and aid in giving detergent compounds a uniform mix.

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Because Diamond Grade particles are uniform they dissolve evenly—and because of their porous nature they dissolve rapidly.

❸ DOES NOT "BUNCH-UP"

An additional advantage of Diamond Grade Tetrasodium Pyrophosphate is that, due to its unique physical form, it does not "bunch-up" when the compound is poured into water.

HERE ARE A FEW POINTERS ON WHY TETRASODIUM PYROPHOSPHATE IS AN EXCELLENT CLEANSER INGREDIENT

1. It removes dirt quickly and holds it in suspension.

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4. It is an extremely effective agent for keeping iron salts in solution—washes white clothes really white, colored clothes their true color.

5. It is an ideal ingredient for preventing scale in cleansing mixtures for machine, mechanical dish and bottle washers.

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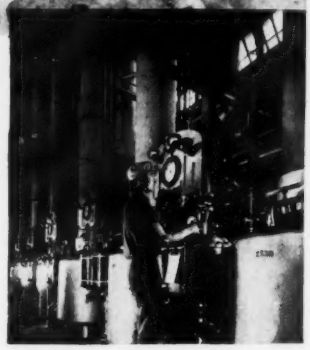
NOTWITHSTANDING the fact that Givaudan has striven diligently, through the development of new processes and equipment, to reduce dependence on foreign sources of supply, there are still some important basic raw materials that can be obtained only from abroad. We began many months ago to build up our stock of these materials. In spite of this we may be faced with shortages. Delays and interruptions are to be expected under present conditions—higher prices are now being demanded by producers abroad—and in addition, war risk insurance and increases in ocean freight rates (totaling approximately 10% of the cargo value) have been added to the prices current in primary markets.

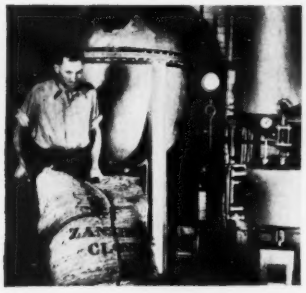
Givaudan's plant at Delawanna, N. J., is one of the best equipped in the world to produce aromatic chemicals.



Facilities such as these huge stills enable Givaudan to meet emergency demands.

NEVERTHELESS

WE HAVE EVERY REASON TO BELIEVE THAT WE CAN TAKE CARE OF ALL THE NORMAL DEMANDS OF OUR TRADE... PRICES WILL NOT BE INCREASED EXCEPT IN THOSE CASES WHERE INCREASES IN THE COST OF BASIC MATERIALS MAKE HIGHER PRICES MANDATORY



From the far corners of the globe—India, Java, Zanzibar—come essential raw materials for various aromatics.

During the past few weeks our facilities have been taxed to the utmost to take care of the tremendous volume of business created by the desire of manufacturers to cover, by outright purchase or contract, requirements for the next twelve months. Some buyers, recalling the scarcity and high prices of aromatic materials during the last war, have rushed to cover their needs for as far in advance as possible. Here we wish to point out that the aromatic chemical business today is in a much better position than it was in 1914-1918. At that time the country was almost entirely dependent on imports. Today we have experienced, well developed and adequate manufacturing facilities, and there is ample evidence that the needs of industry can be met. Givaudan is endeavoring, through research and product development, to put the American aromatic chemical business on a self-sufficient basis. We pledge our continued effort to this end.

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80 FIFTH AVENUE, NEW YORK, N. Y.

BRANCHES: Philadelphia Los Angeles Cincinnati Detroit Dallas Baltimore Chicago San Francisco Seattle Montreal Havana

Build Business on Quality Lines . . .

4 Liquid Floor Soaps

TO MEET YOUR CUSTOMERS' DEMANDS

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BUCKEYE LIQUID SCRUBBING SOAPS

(Plain, Pine or Sassafras.) For all surfaces that require a good NEUTRAL soap. Made from a combination of freshly pressed vegetable oils. Contain a high concentration of soap value. Leave no film on terrazzo or tile.

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(Plain, Pine or Sassafras.) Heavy-bodied liquid scrubbing soaps containing a slight excess of a modified alkali. Developed particularly for rubber, rubber tile, asphalt tile, composition, mastic and cement. Slight alkalinity not only gives increased cleaning action—but also prevents colors from running.

FLOREX (Pine or Sassafras)

Really a liquid detergent; carries a slight excess of modified alkalies. Lower in soap content than SANI-SCRUB; recommended for same type of floors.

EX-ALK LIQUID CLEANER

(Pine or Sassafras.) For all floors, and general purpose cleaning. It is non-alkaline, and neutralizes alkali, thus controlling the alkalinity of the cleaning solution. Heavy suds clean with gentle, thorough action, harmless to any surface that will stand washing with clear water.

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Please mail samples and prices of your Four Liquid Scrubbing Soaps.

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Have you received your copy of the Packagers Digest of Stokes & Smith Packaging Equipment? This new booklet, just off the press, gives a summary of the complete line of S&S Packaging Machines. Every user of packaging machinery should have it on file.

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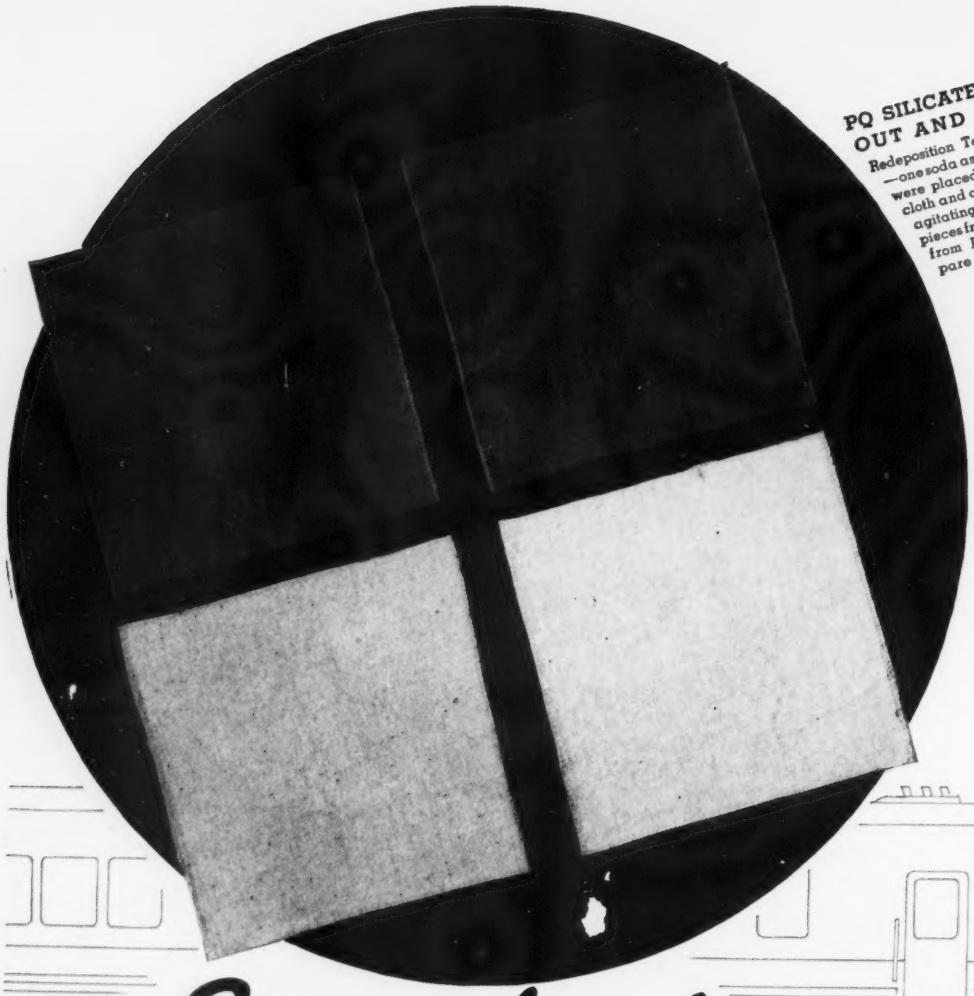

PQ SILICATES TAKE THE DIRT OUT AND KEEP IT OUT.

Redeposition Test: Into 0.4% solutions —one soda ash, the other PQ Silicate— were placed an iron oxide saturated cloth and a clean piece of cloth. After agitating, rinsing and drying: Left, pieces from soda ash solution; Right, from PQ Silicate solution. Compare whiteness of lower samples.

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PQ SILICATES OF SODA

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THE men of our Packaging Research Division have, by their skill, helped bring dramatic changes to the field of packaging.

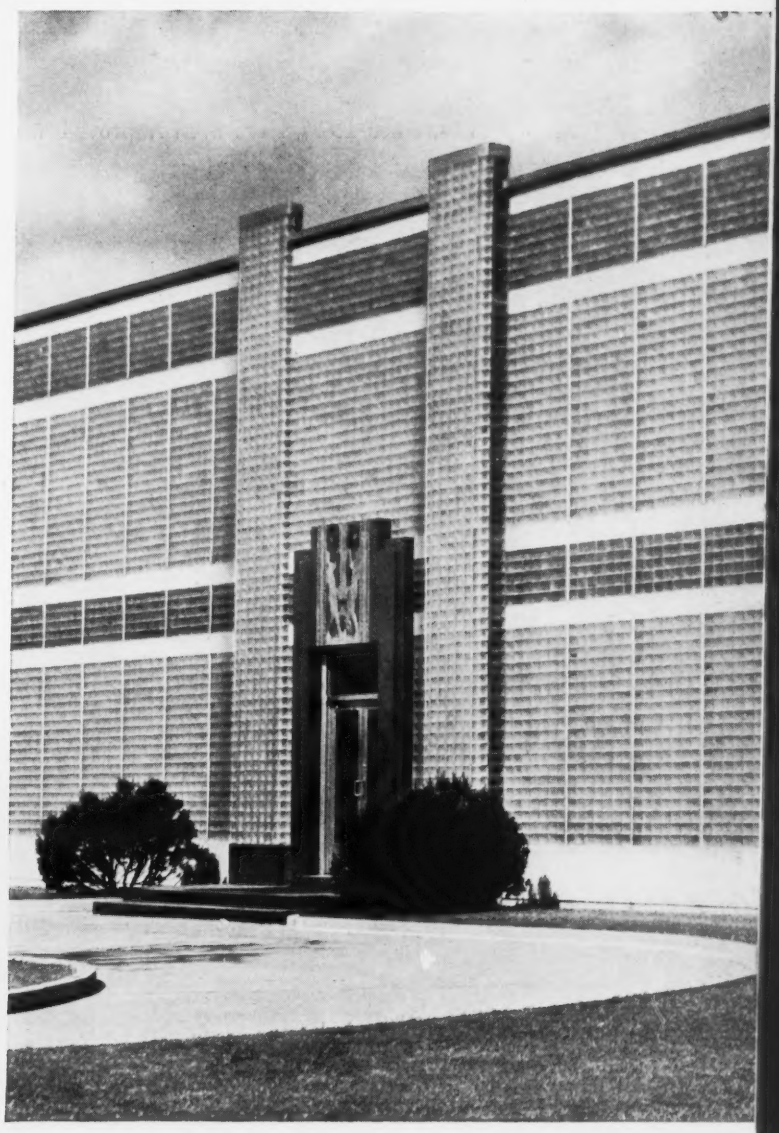
Their research has created a whole new set of facts about glass packages.

Once glass was used only for haughty luxury products. Good designing and Owens-Illinois manufacturing efficiency have lowered the cost of glass to the level of—*in some cases*, *below*—the cost of many other materials.

O-I designers have made modern glass containers startingly light in weight, which brings lower shipping costs. Yet strength has not been sacrificed. The practical designs and controlled quality of O-I containers make breakage a negligible item.

O-I containers, both stock and private mold, have gained in beauty, in merchandising value, in utility to consumers, thanks to these wizards of glass.

These developments mean that you can now give your products the selling advantages of glass—visibility, quality appeal, greater safety, extra convenience. Call in an Owens-Illinois man to study your packaging problems—without obligation. He offers you the benefit of our research in all phases of packaging—containers, closures and shipping cartons. Owens-Illinois Glass Company, Toledo.



These smart glass containers for many pharmaceutical and cosmetic products show how O-I designers combine practical efficiency with eye-catching beauty that helps you sell. Both the Boston Round and Imperial Oblong have been newly redesigned for lighter weight and more streamlined appearance. O-I Lustrseal caps complete the package.

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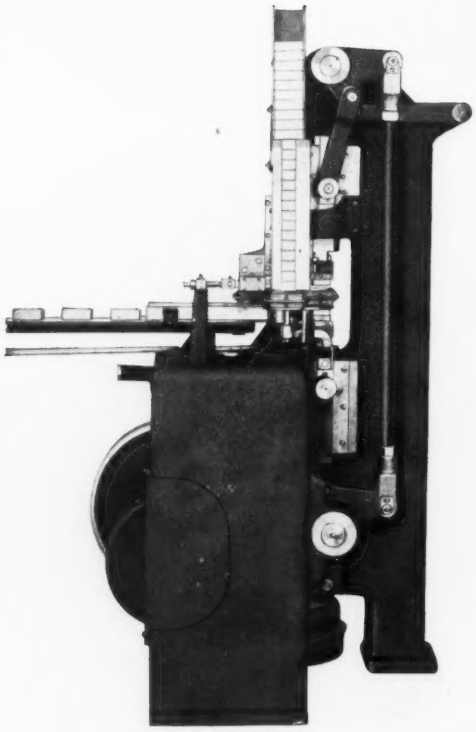
Would You Drive a Car of 1920 Vintage?

Soap presses, since 1920, have been improved as much as automobiles, in the same time.

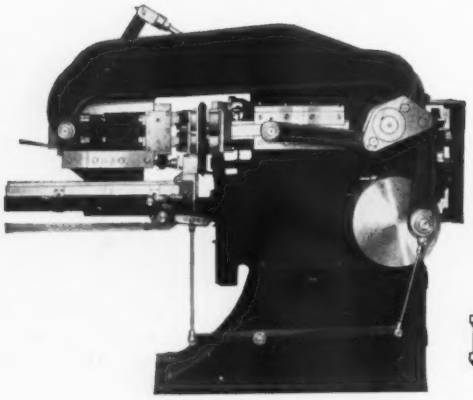
Obsolete, worn-out presses do poor pressing. They destroy expensive dies rapidly. They are false economy.

Save money by replacing obsolete machines with

JONES
TOGGLE OPERATED
PRESSES



Type ET Toilet Soap Press



Type K Laundry Soap Press

. . . perfect pressing at higher speeds . . . far more salable soap . . . no noise or vibration . . . lower operating cost . . . these also are yours when you replace old presses with JONES TOGGLE PRESSES.

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The Standardized *Constant Motion Cartoner* packages, bottles, jars, tins, collapsible tubes and many other articles. It feeds, folds and inserts direction sheets and corrugated board liners with the loads.

As the Editor sees it..

IN THE American soap industry, war in Europe has already been the cause of some confusion, particularly in the markets for raw materials such as the oils and fats. Oils of foreign origin, particularly olive, have moved up sharply. Some soapers advanced soap prices last month in keeping with the new costs and others did so the first of October. The price advances have been small, on a percentage basis, however, compared to the lift in the raw material markets. Attempts of soap buyers, particularly large industrial buyers, to purchase quantities far in excess of their normal requirements brought about a mild buying stampede and has been no help in the general confusion.

Faced with the unique situation of being unable to accept much business which has been thrown in their direction, soapers, especially in the industrial and specialty fields, appear quite uncertain. The caution of many in quoting prices and in not commiting themselves beyond the immediate future is the path of good sense. The war may last three months and it may last three years. In spite of the barrage of European propaganda on this subject, nobody really knows. Except for those whose primary interest is to speculate in their raw materials, hoping for some of the fabulous profits which accrued in the World War to those who were on the long side of the market, a middle-of-the-road policy is undoubtedly to be recommended.

AS THE flames of war sweep over Europe, every consumer of chemicals in the U.S.A. should get down on his knees and give thanks for the American chemical industry as it now exists. How different is the situation today from that of 1914 in respect to supplies of chemicals. Twenty-five years ago, we were dependent for a host of important chemicals upon Germany, and to a lesser extent on England and France. Today, American consumers stand in the security of a self-sufficient chemical industry, protected against a summary cut-off from vital raw materials as was the case in 1914.

To those pioneers who twenty years ago fought and won the fight for a high tariff on chemicals behind which the then struggling American chemical industry lived and grew, every chemical consumer in the country owes a debt of gratitude. Their foresight gives us today better chemicals at the lowest prices in history,—far lower than we ever paid prior to 1914 when we depended on foreign supplies.

THOSE soapers who bought coconut oil under three cents and other oils in proportion back a month or two ago and still have much of these supplies on hand, are faced with the problem of what to do on prices for finished soaps. Thus far, we do not believe that any soap firms have advanced prices fully in keeping with oil and fat replacement costs. Some have moved up prices half way, and others are up a few per cent. All soapers in a good raw material position seem to be torn between the desire to give their competitors a bad time with continued low prices, and their desire to cash in on the situation via higher prices.

Already some soapers have begun to hand out the same old salve which invariably comes when raw materials advance

sharply,—"owing to our foresight, we have a large supply of low cost raw materials on hand, and we are passing the benefit of this along to you as one of our old and valued customers." It all sounds very sweet and lovely, but the average customer knows it is just so much tripe. He will buy from you when he can buy cheaper, and when somebody else is cheaper, he will turn to them no matter how well you "have taken care of him" with low prices and high-sounding letters. This is the hard-headed observation of old man experience.

REMEMBER back in 1917-18 when liquid soap was made from soda soap because the supply of German potash was shut off, and the things which these so-called liquid soaps did when they were put into washroom dispensers? When one of these 1917 liquid soaps contained enough anhydrous to lather, it would not flow from the dispenser. And when it would flow from the dispenser, usually its soap content was so low that any cleansing action was conspicuous by its absence. Is it any wonder that liquid soaps received a black-eye in those days from which it took about ten years to recover. What a different situation exists today!

FOR years the experts on smells have maintained that a rose by any other name smells just as sweet. Maybe it does. Not knowing any other name for a rose but rose, we couldn't say. But we do know that when a liquid soap is called liquid soap, it pays no tax as a cosmetic. Neither does it fall within the purview of the new Federal Food, Drug and Cosmetic Act. However, when the same liquid soap is labeled "shampoo," and sold for washing the hair instead of the hands, it forthwith becomes a cosmetic, pays ten per cent tax as such, and also comes within the jurisdiction of the new drug law,—and its as yet unknown quantities.

The Bureau of Internal Revenue says that a shampoo is a cosmetic and makes that fine distinction between the same soap when used to wash the hair and when used to wash the hands. The suspicion that the Bureau may be influenced slightly by the fact that close to a million dollars yearly is garnered in taxes on shampoos, is beside the point. They maintain that a shampoo is a cosmetic because it is a shampoo, and cosmetics pay ten per cent tax,—and that's that,—and if you don't like it, you can lump it.

Thus, it has come to pass that some manufacturers are labeling their shampoo as "liquid soap shampoo" or "coconut oil soap shampoo." But if the word "shampoo" is in there, it is of no avail. They can't fool the tax collectors of the Bureau, for when it comes to splitting hairs, the boys in Washington can make the average soap manufacturer look like the rankest amateur.

Maybe we should revert to the designation of the Gay Nineties, "Hair Soap." That was the name in the days before "shampoo" was in wide usage. But then, the Bureau might say that use of the word "hair" automatically puts a cosmetic label on the product. Who knows,—and who can guess? Devious are definitions and regulations when it comes to tax collection. So of what moment is it that a shampoo is nothing else but a liquid soap?

IN A war boom, fly-by-nights spring up in business like mushrooms. New rackets rise and flourish, and those of uncertain reputation are given a chance to operate more freely. In the hustle and bustle of increased business, manufacturers are liable to let down the bars of credit caution and to take greater chances. This applies in the sanitary products field, as in any other,—and it is something to be guarded against. If anything, the extension of credit should be watched more closely than ever under present conditions.

Soap Builders

Some notes on old and new substances and processes for extending and improving the quality of soaps

By Joseph Vallance
London, England

IN SOAPMAKING circles, reticence is usually observed on the subject of soap filling and building materials. Some of this reserve is doubtless justified, but most of it may well be compared with the attitude of the ostrich which, when danger threatens, buries its head in the sand and hopes thereby to remain unperceived. A free and frank discussion of the relative merits of different types of filling agents is to be welcomed, more particularly as there have been certain definite advances in this field during the past few years.

Soap itself is a comparatively expensive substance, a fact that sufficiently explains the constant efforts to discover and incorporate in it substances less expensive and yet, if possible, characterized by useful detergent properties. Such substances may in certain cases tend to improve the original cleansing properties of the soap, or may be added to impart abrasive action, or to enhance appearance or cosmetic effect, but in the majority of instances the chief aim is to add bulk to the soap, or "fill" it, and at the same time to reduce costs.

It is of course desirable to use filling, or building and improving agents in such a way that the resulting modified soap is not inferior in quality to ordinary unfilled soap. In the following discussion an attempt is made to group together various common and uncommon soap additives, and to offer suggestions as to when and how they may conveniently be employed. Preservatives, perfumes and bleaching agents are not dealt with here, the discussion being confined to building, filling and superfatting materials, and substances of a closely allied character.

Before proceeding with classification, however, the inherent defects of soap may well be noted, i.e. the tendency to hydrolysis, instability to acids, and the characteristic property of forming undesirable insoluble soaps with hard water. Obviously, if any material can be found capable of minimizing these disadvantages, it should prove extremely interesting to soapmakers. But other factors also enter into consideration here. Thus the soap, after the addition of such building materials, must still remain plastic and workable. Its appearance and essential properties should undergo only the minimum of deterioration.

Loss due to evaporation and deformation should be kept to a low level, the alkalinity of the finished soap should not be excessive, and, finally, the cost must not be prohibitive. Other factors must also be considered, but can best be discussed individually. As examples, one may cite the bone-hard consistency of oversilicated soaps and the "frosted" appearance of soaps that have been liquored with an excess of soda ash.

The following classified list of filling and improving agents for use in soap has been freely adapted from a table compiled by C. L. Bauschinger:

1. Carbonates such as potash, soda ash and bicarbonate.
2. Silicates, such as waterglass, metasilicate and sesquisilicate.
3. Alkali phosphates, — trisodium phosphates, sodium metaphosphate and tetrasodium pyrophosphate.
4. Neutral salts such as chlorides and sulfates.
5. Organic substances, including starch, sugar and cellulose derivatives.
6. Modern soap substitutes, such as fatty alcohol sulfates, lamepons, igepons and ultravons.
7. Insoluble materials, such as talc, china clay, bentonite, and the usual scouring powder abrasives.
8. Superfatting and "cosmetic" toilet soap ingredients, including stearic acid, petroleum jelly, lanolin, wool wax, etc.

Some of these products may be disposed of in just a few sentences, thus clearing the ground for a discussion of those more commonly employed. First of all, I find myself in complete agreement with Thomssen and Kemp ("Modern Soap Making," pp.13-14) when they state that "while there are various objections to soap, especially for use in hard water, none of the substitutes is as convenient, efficient and economical as soap." Generally speaking, whatever the particular advantages of modern non-saponaceous detergents as part-substitutes for soap in the textile in-

dustry, they do not come very prominently into the picture as additives intended for improving the action of ordinary soaps. I would, however, point out that John Glenn has suggested that a "marked improvement" in soap powders may be effected by the incorporation in them of fatty alcohol sulfates, while the same author also considers that soapmakers would do well to experiment with the addition of the more complex derivatives such as the ultravons.

In a contribution in the May, 1934, issue of *Soap*, Harold A. Sweet discussed the utility of the igepons, opining that igepon is "an excellent addition to soap and mixtures of the two are in regular use for purposes where a small quantity will improve the usefulness of the soap." As for the lamepons, which are proprietary condensation products of fatty acids and albumens, they too have been suggested for use in improving soap shampoos, for example, owing to their resistance to lime soap formation and tendency to neutralize excessive alkalinity.

Sodium naphthenate has been widely discussed as a suitable material for adding to liquid, paste, dry cleaning and carpet soaps, owing to its high gelation capacity and its lather-producing, emulsifying and germicidal properties. Its application, like that of the hydrogenated phenols, is however rather specialized, so that we need only note in passing that the optimum permissible proportion for use in soaps of a general character is about 5 per cent. and even then its drying properties should be offset by the incorporation of suitable emollients.

Pumice and sand are frequently employed to impart mechanical abrasive properties to scouring soaps, but can hardly be classed as builders or fillers. Borax is nowadays less widely used in soaps than formerly, due to the fact that its efficiency as a water softener is considerably inferior to that of sodium carbonate. Mineral soap stock, derived from petroleum, is certainly not used to any great extent in British factories, although Dr. Geoffrey Martin records the claim that such products help to "join" soaps which may otherwise be too open, and that mineral soap stock acts as an excellent binding agent. Marble dust and recovered lime waste have been cited as filling agents in the literature, but they are not of sufficient interest to merit anything more than casual reference here.

ONE of the most important groups of soap filling materials is that which includes the various salts utilized in the "liquoring" of soaps, that is to say the process which consists of adding various alkaline solutions to the soap (usually in the crutcher) in order to produce a finished soap with a lower fatty acid content than would normally be the case. These materials are of course as follows: sodium silicate, sodium and potassium carbonates, sodium sulfate (Glauber's salt) and, to a much lesser extent, sodium bicarbonate, sodium and potassium chlorides, potassium silicate and borax. To the waterglass, soda ash and pearl ash are sometimes added talc and other insoluble fillers.

The value of sodium silicate to the soap industry is well-nigh

incalculable. Not only does it possess definite water-softening and detergent properties; it also imparts body and firmness to soaps that would otherwise be too soft, in addition to which it lowers the cost of the finished commodity. The chemical structure of waterglass is extremely complex, the commercial product consisting of mixtures of di-, tri- and tetra-silicates, in the form of a thick, viscous liquid which goes very readily into certain kinds of soap to form an efficient, stable and inexpensive soap compound.

As to the maximum amount of silicate that can safely be added, W. H. Simmons and others appear to rate this at as low as 10 per cent, while Thomssen and Kemp consider that it is possible for the soapmaker to add upwards of 50 per cent of silicate in certain soaps. In my opinion, the latter authors are much nearer the truth (from the works practice point of view), for it is certainly not uncommon for 25 or 30 per cent of waterglass to be incorporated. At the same time, the type of soap to be silicated and the concentration of the silicate solution itself must be considered as variable factors, while another important point is alkalinity. Unless the soap to be silicated is definitely alkaline, the resulting soap is liable to become stone-hard on ageing. Silicate must of course be ruled out of consideration for use in toilet soaps (except in very small quantities), as otherwise difficulty will be experienced during the finishing processes.

A good deal of patient experiment is usually called for, in order to produce a good-quality silicated soap. The degree of alkalinity of the waterglass solution is a very important consideration, this sometimes being enhanced by the addition of caustic soda. Different grades and viscosities of silicate may show widely varying results. Some soaps are thoroughly stirred in the crutcher with a compound solution of silicate and soda ash. Silicate incidentally tends to prevent efflorescence or "frosting" when used in conjunction with sodium carbonate.

The absolute necessity for avoiding a neutral condition when incorporating sodium silicate is well exemplified in soap powder manufacture, in which the silicate is generally added without dilution, if a soap paste of strongly alkaline reaction has been prepared. If, on the other hand, the paste is only feebly alkaline, the sodium silicate itself is previously rendered more alkaline by

the addition of caustic soda, e.g. in the proportion of 7 per cent of caustic soda at 38 Be to 100 per cent of waterglass at 38° Be. This is followed by the addition of soda ash, a typical soap powder of this kind containing, for example, 14 parts of anhydrous soap, 6 parts silicate (36-38° Be), 44 parts of calcined sodium carbonate, and 36 parts of water.

The detergent applications of sodium sesquisilicate were interestingly dealt with in the February, 1935, issue of *Soap* by C. H. Jeglum. While I am not sufficiently acquainted with this relatively new material to express an opinion about it, I note that Mr. Jeglum states that "combined with a small amount of soap, 5 to 10 per cent of sesquisilicate makes a very good cleaner for garage floors, grease-pits, etc."

As to the general utility of soda ash and potassium carbonate solutions in soap liquoring, this is too well known to call for much elaboration. It is, however, wise to remember that an excess of pearl ash will tend to soften soda soaps, while too much soda ash will give the "frosted" appearance already mentioned. The addition to hot soap of soda crystals, dissolved in their own water of crystallization, gives firmness to a weak-bodied soap and also tends to improve its detergent properties. On the other hand, if a strong soda ash solution is added to a firm soap, the resulting product is apt to prove very brittle.

The choice of solutions for liquoring is by no means a simple matter, for so much depends upon the type of soap to be filled. Sodium carbonate solutions, as ordinarily employed, vary in concentrations from 62° Tw. down to 25° Tw., these solutions stiffening the soap and imparting body to it, as described above. As for potassium carbonate, this is sometimes used, in fairly dilute concentrations, to improve the appearance of household soaps. All these filling materials may be thoroughly incorporated in the crutcher, or in a separate mixing pan. Liquoring is occasionally carried out in the frames, but this method has obvious disadvantages.

Salts such as chlorides and sulfates can only be considered as low-grade fillers, for they have no detergent action of their own and will if used in excess, inhibit lathering and offset all the desirable properties of the soap. For this reason, one cannot recommend the use of common salt in liquoring mixtures, nor even, for that matter, sodium sulfate, although the latter, when used in carefully restricted quantities, does certainly tend to produce a soap with a good smooth surface.

Filling matter, or "running," should not be added to the soap until a perfect product is first obtained and the kettle contents properly balanced. If added cold, steam should be turned on the jacket to counteract the cooling effect that "cold-running" will have upon the soap. The contents of the kettle should not in any case be allowed to drop below a temperature of 145° F. It is far preferable to bring the "running" to this temperature before adding it to the soap in the kettle.

If china clay, talc or similar material is used for filling, it should be tipped into the predetermined quantity of silicate of soda solution and allowed to fall through. By this means the powder is wetted and may be stirred to form a smooth cream. Any lumps that may inadvertently be added to the soap defy practically every effort to disperse them and considerable care should therefore be taken to prevent their occurrence.

The increased use of soap filling materials during recent years is apparent in the following analyses of Continental soap flakes, one containing a high proportion of carbonate and silicate of soda, while the other contains over 20 per cent of starch:

Sample A	*Per Cent*
Carbonated and silicated alkali as Na_2O	4.28
Insoluble mineral matter	6.4
Silica (present as sodium silicate)	5.26
Fatty acids	60.0
Moisture	14.4

Sample B	*Per Cent*
Carbonated and silicated alkali as Na_2O	1.15
Silica (present as sodium silicate)	2.4
Insoluble organic matter (starch)	21.3
Fatty acids	52.0
Moisture	16.8
Free caustic alkali	a trace

During 1931, an analysis of one particular sample of Continental soap flakes, as published in an English journal, showed total fatty acids as 49.96 per cent and starch content as 38.9. There is scarcely any need to add that such cases of gross adulteration are to be deplored.

AS effective admixtures to soap, the various alkali phosphates are well worth investigation. Trisodium phosphate, chiefly known as a constituent of dish-washing compounds and paint cleaners, has been suggested as a desirable constituent of silicated laundry soaps. One would imagine that its utility in this latter respect would be due, most probably, to a tendency to increase the emulsifying and detergent action of such a soap which might otherwise be weakened by too high a content of silicate.

Rather more recent is the incorporation in soaps of tetrasodium pyrophosphate ($Na_4P_2O_7$), a mildly alkaline salt that is best known in its anhydrous form, although the crystalline decahydrate is also available commercially. It is used as a building material in soap powders, where its ability to prevent the precipitation in hard water of metal soaps is distinctly valuable, even though it is less potent in this connection than the metaphosphate, at least, so far as calcium soap formation is concerned.

As to commercial sodium metaphosphate, Augustin and others have pointed out that this is a buffered mixture consisting chiefly of anhydrous sodium metaphosphate. Its outstanding property is the ability to impart lime-resistance and convert lime soaps back into soda soaps, but it is also a useful water softener. It is used in the manufacture of solid.

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REVERSED SOAPS

A few notes on the cation-active soaps

By J. Warwicke

IN recent years wide advances have been made in the chemistry of wetting agents, soaps and detergents. Almost the only agents for washing which our forefathers had were the common soaps. Today, we have many many more. There are the numerous sulfonated oils and hydrocarbons, the sulfuric esters of the fatty alcohols, the fatty acid amide derivatives and a comprehensive class of bodies called quaternary ammonium salts. It is the purpose of this account to show that some of the newer discoveries, and especially the quaternary ammonium compounds not only perform the duty of washing like soap or even better, but have distinctly new properties which open up entirely novel uses in the cosmetic and soap-using industries.

There is one feature of all familiar detergents which is common, namely the presence of a long-chain fatty radical. Thus, in a typical soap, we have sodium stearate, $C_{17}H_{35}$.COONa, and so forth. The free acid, stearic acid on chemical reduction reverts to the corresponding alcohol, stearyl or octadecyl alcohol, $C_{18}H_{37}$.OH, and this alcohol (and others of fewer carbon atoms) may be made to undergo various transformations and yield wetting agents of various kinds, but all contain the fatty alcohol chain at some point in their make-up. In fact, the surface-activity of such bodies is almost entirely due to the influence of this constituent radical.

The fatty alcohols themselves are not wetting agents, but by certain simple processes may be made surface active. Just as ethyl alcohol is converted to ethyl hydrogen sulfate when treated with sulfuric acid, lauryl, cetyl or stearyl alcohols may be transformed to the corresponding sulfates. Cetyl alcohol yields cetyl sulfuric ester, $C_{16}H_{33}$–O–SO_3H and so on, and since there is still one hydrogen atom unreplaced, a metal salt may be prepared by neutralization. In this way we get cetyl sodium sulfate, a useful "sulfonated" fatty alcohol product and a powerful detergent. The properties of the sulfated fatty alcohols are well known now, being valued for their ability to deterge in the presence of lime and slight additions of metallic salts. This is because the metal salts of these compounds are fairly freely soluble in water, unlike calcium stearate, etc.

It is a well known fact that most salts ionize when dissolved in water. Thus, copper sulfate yields an equivalent number of positive ions of copper and negative ions of sulfate when dissolved in water and we see evidence of this when such a solution is treated with an electric current. The copper cations travel towards the negative electrode and are deposited. Apart from actual electrolysis, however, this phenomenon of ionization is general with all salts.

When soap ionizes, it is believed that we get sodium as the cation and stearate as the anion and since the latter, the negative ion, contains the fatty or surface-active component, we have come to regard soap as an anion-active detergent. Actually, the ionization process is more complicated than mere rupture of the molecule, for modern theory postulates complex ions, but the fact that the fatty radical is in the negative ion, still remains.

Of course, it is not usual to apply the term anion-active to soap, simply because until we have cation-active soaps, that appelation has no meaning. Now, however, research in recent years has brought to light the latter variety.

It should be noted that the sulfated fatty alcohols belong to the anion active class. The ionization equation is

$$C_{16}H_{33}—SO_4Na \rightarrow Na + + SO_4—C_{16}H_{33}—$$

Again, the cation is sodium and is inactive from the detergent standpoint.

Fatty alcohol esters and halogen compounds have the property of giving addition products with tertiary amines to give compounds which are cation-active, however. Without entering upon the chemical details of the reaction, it may be compared with the combination of hydrochloric acid and ammonia to give ammonium chloride. Thus, cetyl chloride and trimethyl-amine give cetyl trimethyl ammonium chloride.

$$C_{16}H_{33}—Cl + (CH_3)_3N \rightarrow C_{16}H_{33}—(CH_3)_2N—Cl$$

Another tertiary amine which acts in the same way is pyridine, C_5H_5N, to give for example cetyl pyridinium chloride.

The interesting fact about both these compounds is that they are true wetting agents but belong to the cation-active class, for on solution they ionize to give chloride as

the anion, or negative ion, whilst the rest of the molecule, including the fatty radical makes up the cation. That is, the surface, active ion is the positively charged one.

Cation: $(C_{16}H_{33}—(CH_3)_3N)+$
Anion: Cl^-

There is therefor a profound difference between these compounds and soap or the sulfated fatty alcohols. Whilst separately they both deterge and wet, when mixed together they neutralize each other and in fact, if present in equivalent proportions precipitate one another from solution leaving a clear foamless liquor. When one is in excess of the other the combination has the properties of the ion which is in greater concentration. The cationic soaps have been well named "reversed" soaps.

The reversal of the ordinary process of cleansing a soiled fabric is evident when a cationic soap is added in excess to an alkaline solution of an anionic soap containing dirt in suspension. Neutralization of electrical charges and redeposition of the dirt takes place. This phenomenon is hardly desirable except in the interests of experimenting generally, but has its uses. One German firm has proposed a method of applying white pigments to rayon in this way, the aim being to subdue the luster. Thus, zinc oxide is worked up into a paste with a sulfated fatty alcohol and there is then added a calculated amount of cationic soap sufficient to neutralize the anionic soap. The pigment and electro-neutral compound are precipitated together and the excess fluid is removed. The mass is then peptized by a cationic soap and a cation-active dispersion is obtained. this being substantive for rayon and capable of uniting with the fiber like a dye.

Another and related use for cationic soaps is disclosed in the application of rubber to textiles. The particles of rubber in latex are normally charged negatively, but by treatment with an excess of cationic soap, they become positively charged and just as well dispersed. Wool or other textile is dipped into a dilute solution of sodium carbonate first as a way of increasing the negative charge on the fiber, and it is then dipped into reversed latex. The rubber particles attach themselves to it then in a very finely divided form and leave a clear fluid at the end exhausted of rubber. Vulcanization of the rubber then follows.

It is natural to ask at this stage whether the detergent powers of cationic soaps are capable of commercial exploitation since it has been shown that under the usual conditions of washing they hinder rather than help the removal of dirt and impurity. It is no use, for example, to mix soda ash and a cationic soap for washing wool. Apparently under such circumstances the soap would be merely uselessly absorbed by the fiber.

The obvious conclusion is that cationic soaps should be employed for washing purposes in the presence of acids. This is a result of the electric charge on the ion and not only because such compounds are capable of resisting chemical decomposition by acids. Fatty alcohol sulfates are not immediately destroyed by acids but they do not actively deterge when a solution is acid in reaction. In this case, the fiber tends to absorb the sulfate and remove it from the solution rendering it ineffectual. (In this case, the fiber is positively charged).

The cationic soaps appear to be eminently suitable for washing in slightly acidic media. Wool, for example, frequently contains considerable proportions of lime and mineral salts which if not removed mar the brilliance of the shade obtained on dyeing. This lime on the whole tends to precipitate the soap and curdle it, or if soda is added also cause harshness by hydrolysis of the fiber protein.

Here is a patented process of washing raw limey wool with a cationic soap. A bath of 50,000 parts of water contains 50 parts of stearyl pyridinium bromide and 300 parts of hydrochloric acid of 36 deg. Tw. The solution reacts definitely acid but foams freely. One thousand parts of raw wool are immersed and worked in this solution for 15 to 30 minutes at 40 to 45 deg. C. The wool emerges free both from dirt and metallic impurity and is then rinsed free from acid and dried. Such wool may then be quite safely entered into an acid dyebath and the after-precipitation of fatty acid is impossible.

The cationic soaps do deterge but their range of activity is different from all ordinary soaps or sulfated alcohols. Whereas the latter are most effective in mild alkali and pH conditions higher than 7, the cationic soaps are most useful below pH 7.0. This fact may be taken advantage of in formulating shampoo preparations, for example, using hydrogen peroxide whose self-decomposition is favored by alkalinity. By themselves the cationic soaps are often slightly acid in reaction and this gives them an astringent action in the mouth making them useful in mouth washes and dentifrices. They may be compounded with citric and tartaric acids and readily emulsify essential and aromatic oils.

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Glycerine Determination

Certain colloidal products such as methyl cellulose used as fillers in soaps interfere with the determination of glycerine by the usual dichromate method. A new method for determining glycerine in filled soaps leaves these interfering substances behind. The glycerine is allowed to diffuse out of a solution of the soap sample through a parchment membrane. In order to equalize the osmotic pressure to some extent, the diffusion vessel was filled with a solution of pure soap of suitable concentration. Tests with known amounts of glycerine showed that the glycerine concentration was the same in the solutions on either side of the membrane after 48 hours. If the soap sample contains sugar or similar dialyzable substance, their presence must be considered when the glycerine determination is carried out. W. Schulze. *Fette und Seifen* **46,** 66-9 (1939).

Soap Price Advance Lags

WHAT is the soap industry going to do about higher raw material costs? How quickly will soap selling prices respond to the sharp lift in the oil and fat market? Will higher soap prices come at once, or will there be a lag until soap makers pass along to their customers all the benefits that might be gained from inventory appreciation over the past month? SOAP's representatives have been checking the answers to these questions over recent weeks and their findings indicate that the industry's policies have not changed much since the last big upswing in the raw materials markets.

Soaps are being sold today at prices for which they could not be reproduced in the present market set-up. We have on the one-hand an advance of as much as one hundred per cent in some highly essential soap raw materials, and on the other the sight of bargain sales in the soap divisions of the nation's department stores proceeding as gaily as if submarine attacks were not pushing oil replacement prices higher day by day. The slight price increases that have been made as yet show almost no effect on the levels of toilet or household soaps. Sales in bulk to industrial consumers have been more prompt to react to the higher raw material costs, but over the whole list the average advance to date is estimated at only five per cent. This figure stands in sharp contrast to the forty or fifty per cent advance in the cost of some of the most important soap raw materials.

One of the largest producers in the country has advanced prices on laundry soaps ten cents a case. This advance went into effect around Sept. 10th. As yet, this same company has not advanced prices on its toilet soap, and it is unlikely that it will do so, in the near future, they state; at least, not on their well known brands. The practice of many companies will be to raise the well-known brand prices very little, if at all. Compensation will take place by advances on other lesser-known soaps. In this manner, the companies may hedge against increased raw material prices and still maintain the popularity of their standard brands before the public.

Another large soap producer has advanced prices on packaged soap 20 cents per case, following advances made by competitors, and has also advanced prices on toilet soaps from 15 to 20 cents per case. They state, however, that the advance is nowhere near in proportion to the advance in fats and oils prices. They explain that they are attempting to keep soap prices from getting out of line with what the consumer can and will pay. Yet the consumer expects higher prices and is probably reconciled to paying them.

This same company, along with others, is keeping its salesmen under wraps, so to speak, and is only attempting to fill orders that are a result of normal consumer demand. It is reported, incidentally, that this same company is not guaranteeing delivery on its coconut oil shampoo. By filling only normal orders, the company is avoiding those who may attempt to buy up soap for the purpose of speculating. In other words, the soap industry seems to be making an effort to see that its regular customers and the consuming public will not be taken at an unfair advantage.

A recent visit to retail stores in the metropolitan area brings forth the fact that, as yet, no price advance has been passed on to the consumer. In fact, many retail stores were featuring reduced prices on various soaps during September.

Prices on soaps sold in bulk to industrial users were quicker to respond to the raw material advance than the rest of the list, as might be expected. Tallow chip soap, for instance, the staple purchase of the power laundry operator, moved upward with the tallow market,—to which it is necessarily closely geared. In the course of only a few weeks quotations were advanced two times, bringing the single barrel figure up from 7¼ cents to 8¾ cents per pound,—an increase of over 20%.

Soaps produced from palm and olive oils were sharply affected, as these oils have shown the steepest advances. Quotations on neutral white powdered soap, made from a palm oil base, had moved as high as 32½ cents per pound late in September, as compared with 27½ cents per pound in the early part of the month. During the same period the advance in quotations on coconut-tallow neutral powdered soap was only about a cent a pound.

In most cases, of course, old buyers are being protected for a limited period, and for the moment are not feeling the advance at all. The general practice seems to be to continue previous prices to old customers and to quote the higher prices only to prospective new buyers. When old stocks of fats bought at the lower levels are used up, the advance will then have to become general. When this point is reached it is normal to look for a general reshuffling of accounts as buyers are brought up to the higher levels. When faced with a final definite price advance, buyers often seem unwilling to pay the higher price to their old source of supply, and prefer instead to pay the higher figure to another supplier. Thus one soap maker's loss becomes someone else's gain, and where one manufacturer may lose four or five accounts, he may also pick up six accounts that some fellow soap maker has lost.

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The EUROPEAN WAR
...and the Soap Raw Materials Market

LULLED into a sense of false security over recent months by an apparent glut of both edible and inedible fats and oils, soap makers were brought sharply to their feet this past month by a runaway market on soap fats which found them once more holding the bag. Before they could get their feet out from under the desk and their brokers on the phone they found that palm oil, palm kernel and olive oils had doubled in price and that coconut oil and tallow were also priced sharply higher.

With the sinking of the Athenia just a few hours after Great Britain's declaration of war, notice was served on users of imported oils such as olive, palm and coconut, that future arrivals would be decidedly uncertain. It became obvious too that rising freight rates, skyrocketing war risk insurance and speculative cornering of stocks may result in even higher soap fat costs over the next few months. That the effect of these higher costs will be partially made up to the soap industry in the form of a higher return for its by-product glycerin seems quite probable, although for the moment this market is, on the surface, strangely inactive. We have an idea, though, that this apparent calm in the glycerin market masks the real underlying situation. We see in the maintenance of low nominal prices on glycerin an attempt on the part of producers to keep stocks out of the hands of speculators in a move to protect peace time domestic consumers.

If soap makers must look forward to a rising cycle of fat prices for the duration of the war, at least they can have a feeling of relief that the cycle is starting upward from an unusually low level.

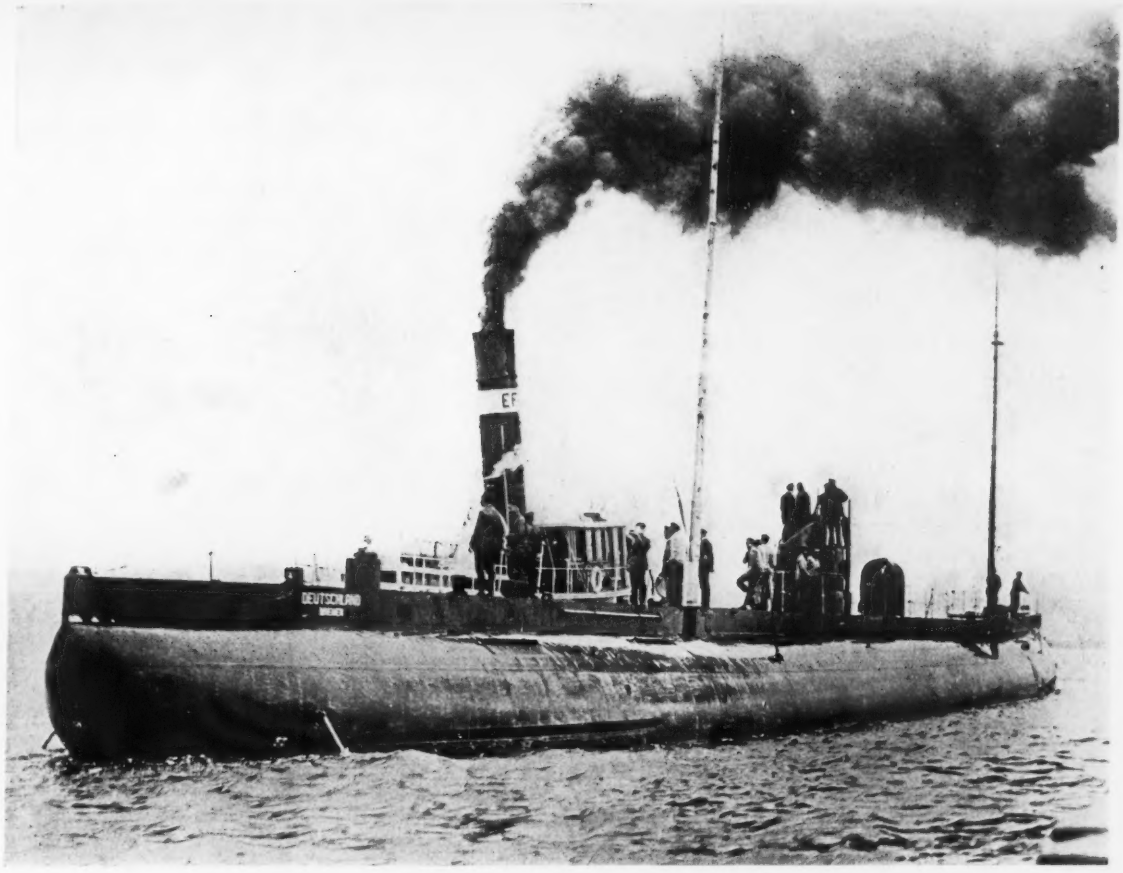
A month ago, the fats and oils market was essentially a buyers' market. Prices on most of these raw materials had reached the lowest level in over five years. Supplies were abundant, and buyers were few. Not only were there heavy stocks of inedible fats and oils, but edible types as well were finding their way to the soap kettle and further lowering the price of soap raw materials. To all appearances, low prices were here to stay, for estimates of fat and oil production were even greater than the large crops of recent years.

Estimates placed the domestic production of fats and oils during 1938 at eight and one-half billion pounds, the largest since 1929. Domestic production of tallow showed a substantial increase during 1938. Although there were not a great deal more cattle slaughtered, those that were, weighed a great deal more than the average for previous years. Hogs were slaughtered in greater numbers last year, and as a result, there was a greater production of grease. Cottonseed oil production in 1938 amounted to 842 thousand tons, the largest since 1927. It displaced coconut oil as the leading vegetable oil in the production of margarine and also released other oils for use in the soap industry. The whaling industry has picked up considerably during the past few years, and an ever-increasing whale oil production helped to swell the supplies of soap kettle fats and oils. Domestic production of corn oil in 1938 decreased substantially and it is estimated that our lard production for 1939 will increase more than 300 million pounds over 1938. Production of coconut oil has also been favorable to the soap maker. In 1938, an increased copra crop in the Philippines totaled 799,568 metric tons as compared to the 1937 total of 632,360 metric tons.

Small wonder that the soap makers were but little concerned over war clouds. They felt themselves to be in a good position so far as choice of raw materials for the soap kettle was concerned. Prices were at a low level and to all appearances would stay there. At least, they saw no prospect of an immediate rise in prices and naturally saw no reason for buying ahead or laying up inventories,—even with tallow as low as 4½c per pound and coconut oil selling at 3c in tanks. This market story has a very familiar ring to it and recalls the situation in 1936. Then, as a month ago, the oil and fat market was featured by low prices, of which, as usual, the bulk of the industry took no advantage. There was little attempt to build up stocks for the future at the low levels then prevailing.

As a result, the greater majority of soap makers were caught short three years ago with the sudden rise of prices which sky-rocketed 5 and 6 cents in six months. They scrambled for stocks, but those that were left were at a prohibitive price. An intensive search uncovered substitutes, but as demand on these increased, their prices went up also.

The sudden rise in prices in 1936 was not caused by increased demand, but rather by decreased supply, as a result of curtailment of crop production, droughts and hurricanes in the previous year. This, according to the soap industry, was



The modern counterparts of the "Deutschland," most publicized unit in the World War German submarine flotilla, have sent soap maker's oil and fat costs skyrocketing in the few weeks since the outbreak of war. The "Deutschland" attracted considerable attention by making two transatlantic trips to United States as a merchant submarine in 1914. She was later converted to prey on ocean traffic as the modern German submarines are doing in the war today.

an unnatural occurrence which would hardly happen again.

But today, we have a similar situation. Soap makers were nicely situated, inventories were at a normal level even with the prevalent low prices. Suddenly, prices rose. It wasn't decreased supply this time, but it was another unnatural occurrence . . . War! The average soap maker, again, had failed to take advantage of low price levels. Then fearing that he would be caught as in 1936, he has made a rush to increase his supplies of fats and oils. This increased demand, coupled with speculation, has had a definite hand in the exaggerated upward movement of prices.

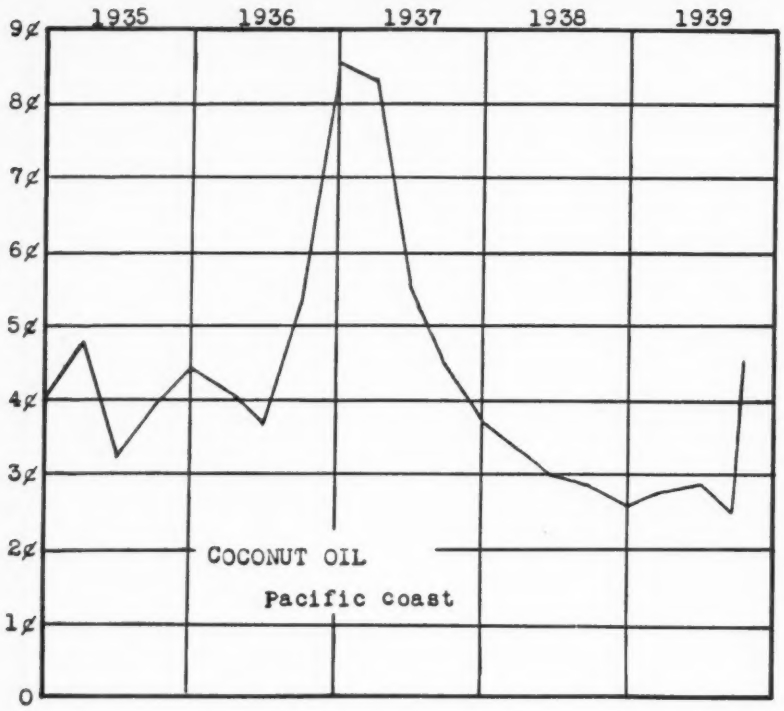
THE immediate effect of the declaration of war on the oil and fat markets has been to shoot spot prices sharply upward on such oils as are imported directly from the war zone. These increases are for the moment rather hard to interpret, as most of the markets quickly moved to a nominal basis. Spot supplies are being doled out by holders to their regular accounts and future quotations are of necessity being withheld until suppliers get some idea as to what they may expect in the way of deliveries and future prices.

Two of the oils most sharply affected have been palm and palm kernel. Their production being largely in the hands of the British, and the shipping lanes being so vulnerable to submarine attack, this quick response to war news could have been expected. Here the spot market jumped from 2⅜c per pound on tanks of palm oil to 5½c within the space of a few days following declaration of war. At the current writing neither spot nor future quotations are now being made.

Another oil seriously affected has been olive,—a natural situation since supplies come from the troubled Mediterranean district. No one knows yet just who will control these important shipping lanes over the next few years, nor what can be expected in the way of future deliveries. Olive oil has been scarce since the outbreak of the war in Spain several years ago, with the result that stocks in this country are distinctly subnormal. In the light of recent events spot quotations jumped from 73c per gallon to $1.35 almost overnight.

Coconut oil has been affected a little less sharply, as American supplies have in the past come largely

Five Years of Coconut Oil Prices



from the Philippines. Since we control our own source of supply and the Pacific sea lanes are considered to be reasonably safe from submarine attack and blockade dangers, the effect of war news pricewise has been a little less sharply felt. Nevertheless the interdependence of the oil and fat market is well established, and the general upswing could not fail to make its effect felt. The advance here has been from 2¾c per pound for New York tanks a month ago, to a current quotation of 4½c. City extra tallow has moved during the same period from 4⅜c to 6¾c under the same influences.

The exact course that prices will take in the next few months is impossible to predict, but the consensus is that there will be no price runaway as in other years. The one thing supporting this fact is the oversupply of fats and oils which we now have. Only a month ago, these supplies were a drug on the market, but they are now a welcome addition. These surplus stocks, it is hoped, will act as a cushion against top prices. If, on the other hand, supplies were scarce at this time, it is easy to imagine at what level prices of fats and oils would be found.

We are not liable to get a clear picture of the situation in any case for several months. Not until control of the seas is settled between the British battleships and the German subs will we have much of an idea of what to expect either in the way of future supplies or prices. Existing spot stocks or future contracts that some soap makers have will probably carry them along a few months and by that time the picture may have clarified itself a little.

If the sea lanes are not reopened then a big push upward in prices may come around the first of the year. Soap makers would do well to keep in mind that even after the sharp advances of the past few weeks, current oil and fat prices are not high. They are still below normal average levels over a period of years and only seem high in comparison to the sharply depressed levels of the past year or so. If we get to a real fat shortage, the present market level may seem in retrospect just one of the lower platforms on the big diving board.

BESIDES these price questions there are a number of other posers that the war outbreak is outlining sharply. What will happen, for instance, to Secretary Wallace's plan to "divert edible oils and fats to soap use"? Most market followers lean to the theory that this rabbit will now be quietly left in the magician's hat. Thus the administration will be spared the necessity of offending the tallow interests in its attempt to aid lard prices.

What may be the expected effect on whale oil legislation? The outlook even before the war started was for a sharply lowered production of whale oil by American interests due to the imposition of the excise tax on oil produced by American floating factories using foreign killer ships. The probability is now that additional pressure will be put on Congress to suspend the tax for a year or more,—giving the American whaling industry an opportunity to build up its own complement of killer ships and trained personnel.

Whether there will be a large demand abroad for American fats and oils is a question. It may be presumed, however, that Germany is out of the question so far as buying soap raw materials from this country is concerned, partly because of lack of money and partly because of transportation difficulties.

England and France, have both the purchasing power and the transportation facilities. But they also have a present surplus of fats and oils, and when these are exhausted, it is likely that they will call upon their colonies for such supplies, rather than the United States.

In any case we may not have such a surplus of fats six months from now. The large supply of domestic tallow may be sharply reduced and production estimates for next year may be lessened considerably. It may be necessary to use present supplies as substitutes for unobtainable foreign oils. Then too, war raises

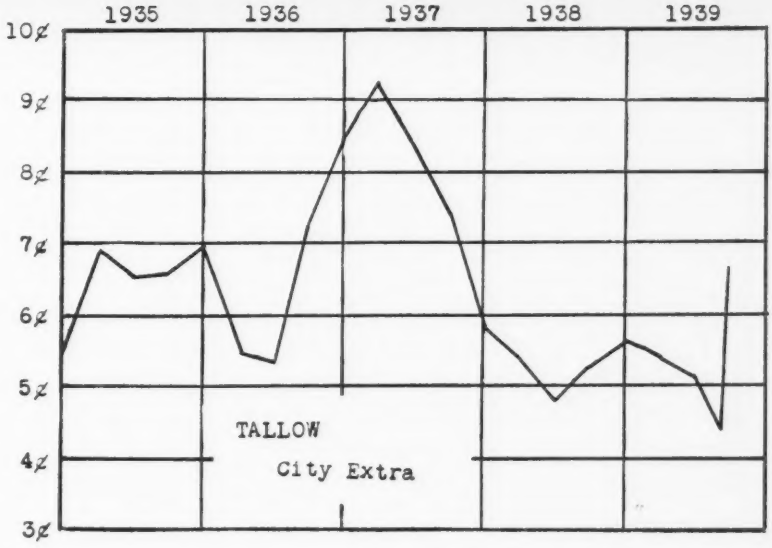
the price of meat. And because of that, the farmer, in order to realize a greater profit, holds his steers off the market and gives them more time to fatten up. As a result, the immediate production of more tallow is also held up.

Many variables enter the picture as to whether this country will have an increased or decreased soap production as a result of the war. Some soap makers believe that production of soap will be cut down because of the loss of foreign markets. They fear that interference with shipping and higher freight and insurance rates will cut down our foreign soap trade. Just the opposite effect may be the actual result, however, with buyers formerly supplied by the warring nations turning to the United States for their requirements. One soap maker reported that he has already received three inquiries from abroad,—two from Sweden and one from Belgium, seeking a new source of supply for soaps formerly shipped out of Germany.

In any case we may look for more glycerin to be recovered from soap manufacturing operations, as we cannot quite visualize a war progressing without higher prices for glycerin. The present placid tone to the glycerin market does not quite ring true to this observer. We have an idea that any one trying to find a source of supply for any substantial amount of glycerin at currently quoted levels would be in a tougher spot than Diogenes.

Returning once more to the particular problems of the soap maker, our observation has been that after the first war scare the general attitude has settled down to one of watching and waiting. There is little else after all that the industry can do for the moment. Probably the firms that will be most seriously affected are the ones that in the past have depended heavily on palm, olive and palm kernel oils. They are of course moving immediately to readjust their formulas and turning to all available substitutes. Before the war is over we may see a return of the stringent market conditions of several years ago when soap makers were buying up odd lots of oils and fats, sight unseen, the names of which they were not even able to pronounce.

Five Years of New York Tallow Prices



One soap maker, who uses quite a bit of foreign oil, stated that he is not worrying about the war problem, and this seems to be quite a common attitude in the industry. He further stated, that as prices of raw materials go up, he plans to increase his soap selling prices immediately. He does not plan to average his price advance over the entire rise of the raw material, but will make it correspond to the top price of the raw material at once. This, he says, will compensate for inventory losses that will inevitably be suffered when the market finally turns downward.

Furthermore, this soap maker is not going to make the same mistake some soap makers did in the last war. He is going to avoid *over expansion*. For, as he says, there is no telling when the war will end, and he does not want his money tied up in excess equipment, machinery, inventory, etc.

Soap Price Advance Lags

(*From Page 27*)

Several soap makers were inclined to believe that the present low price of glycerin would be an added incentive to raise soap prices. As long as raw material prices have gone up, and the rise is not being passed on to glycerin prices, it must be absorbed someplace, and soap products are the only other outlet.

There is the added possibility that increased demand from abroad might serve further to boost soap prices at home if the war continues for a period of several years. The many small countries, who have been dependent upon England, France and Germany are expected to turn to the United States for their soap supplies. Already one soap manufacturer in this country has received several inquiries from foreign sources he has never sold before. However, he has refused to quote prices on these inquiries, and, in fact, has withdrawn all his soap quotations for the present, because of the uncertainty of fats and oils prices. He is content to hold his soap off the market until prices become somewhere near stabilized. When he does resume quotating, he says, he will average his prices over the entire rise in the raw material markets. This is contrary to the policy planned by another manufacturer, who states that he will set his soap prices at the top figure, to correspond with the top price of raw materials. This, he says, will compensate for any loss that may occur in a future decline of prices.

New Products and

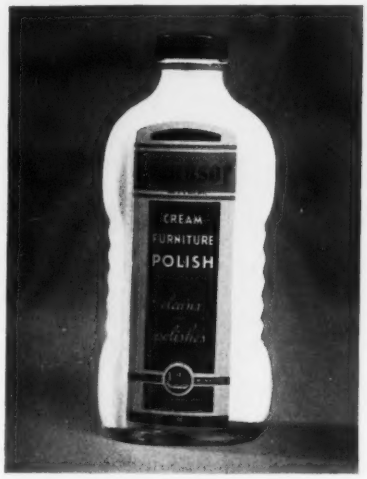
Leadway Foods, Chicago, is packing a gold decorated glass tumbler in each package of its new product "Leadway" soap flakes. The package, by Central Carton Co., Cincinnati, is designed in red and blue.

A new lithographed container is being used by the Franklin Research Co., Philadelphia, in the marketing of its "Chekit" line of wood floor finishes. Container by Crown.

Hershey Estates, Hershey, Pa., has added a new line of toilet soaps to its list of products. Hershey's "Cocoa Butter" toilet soap carries a brown wrapper and is packed three to the box. A black and white wrapper is used for "Cocoa Butter" Tar soap.

Packages

Windsor Wax Co., New York, has adopted a new bottle with yellow, red and black label for its "Windsor Cream" furniture polish. The bottle is by Hazel-Atlas Glass Co.



One of the new Christmas packages of shaving soap and accessories offered for the 1939 holiday season by Yardley & Co., New York. In addition to the regular unit, is a "deluxe" package in a cowhide travel case with an attractive red waterproof lining.

Included in the newly repackaged line of Daggett & Ramsdell, New York, is their "Cold Cream" soap package, containing three bars of soap. The firm's entire line was designed by Everett W. King, New York package designer.

News....

Shampoo Manufacturers Exhibit

John H. Breck, Inc., shampoos, Springfield, Mass., was an exhibitor at the recent show sponsored by the New York State Hairdressers and Cosmetologists Ass'n at the Hotel Pennsylvania, New York, from Sept. 10 to 13. Other shampoo manufacturers who had booths at the show were F. W. Fitch Co., Des Moines, Iowa, and Marveloks Laboratories, division of Antiseptol Co., New York.

Introduce "Cameo" Cleanser

Cameo Corp., Chicago manufacturer of soap powders, has adopted a sampling campaign to introduce "Cameo" cleanser in Chicago and suburbs. Distribution of sample cans is controlled by grocers who give them out to customers rated as above the average in buying power. Sales literature enclosed with samples stresses the claim that Cameo cleanser "is not a by-product" and "has a fresh, clean fragrance that makes it a pleasure to use." A gayly colored dispenser is also offered with the sample.

Laundry Institute Convention

The Fifty-Sixth Annual Convention of the American Institute of Laundering is being held October 1st to 5th, at Atlantic City, N. J. The allied trades exhibits of laundry equipment and supplies is expected to be the largest ever held, as 250 booth spaces have been assigned. A varied entertainment program for both men and ladies is supplementing the business meetings.

Eastwood, Armour President

George A. Eastwood, who was recently elected executive vice-president of Armour & Co., Chicago, now succeeds Robert H. Cabell as president of the company. Mr. Eastwood has been with the company since 1897, and has advanced steadily upward since that time. Mr. Cabell, who has resigned, will remain as a director of the company.

James E. Fitzpatrick

James E. Fitzpatrick Dies

James E. Fitzpatrick, president of Fitzpatrick Bros., Inc., Chicago soap and cleanser manufacturers died September 20th at his home in Coral Gables, Florida. Mr. Fitzpatrick was the last of four brothers who founded the company. Funeral services were held in Chicago.

Soap Association To Meet

The thirteenth annual meeting of the Association of American Soap & Glycerine Producers will be held January 11, 1940, in New York. The meeting was originally scheduled to be held on November 23, but as that date has since become Thanksgiving Day, a change was necessary.

New Tooth Powder Product

Ben Hur Laboratories, Los Angeles, are marketing a new product, "Advance" tooth powder, in half-pound cans. An introductory offer is being made which enables each purchaser of "Advance" to buy a can of bath crystals for one cent additional.

Propose Prison Soap Plant

A proposal has recently been made to establish a soap manufacturing plant at the Essex County (N. J.) Penitentiary, located at Caldwell, N. J. Soap for all county institutions, except one, are now purchased on the open market. The proposal would eliminate the one institutional soap plant in operation and would make the penitentiary plant a central unit for the county.

P & G Introduce New Flake

Procter & Gamble Co. introduced their new "American Family Speed Flakes" last month through test advertising campaigns in Chicago and a limited number of other cities. It is claimed that this new product "suds more than twice as fast as the average for ten other largest selling washday soaps." This quick action, P&G say, is produced by a tissue thin flake rather than by the addition of any special ingredient to the formula.

Soap Index Higher

The employment and pay-roll indexes for the soap industry in the United States advanced several points in July of this year. The employment index for July stood at 92.1 as compared to 89.4 in June of this year and 87.6 in July of 1938. The pay-roll index for July, 1939 reached a figure of 94.7. This compares with the June, 1939 mark of 93.5 and the 1938 July figure of 87.1.

DCAT Skytop Meeting

The fourth annual Fall meeting and golf tournament of the Drug, Chemical and Allied Trades Section of the New York Board of Trade scheduled for Oct. 20th and 21st at Skytop Club, Skytop, Pa., will open informally on Thursday evening, Oct. 19th, with a cocktail party in

charge of S. B. Penick, Jr. At 9 a.m. the following morning, golfers will start their qualifying rounds, and those qualifying will start their final rounds at 9 a.m. Saturday morning. Business meetings are scheduled for both days at 3 p.m., as is entertainment for the ladies, which includes golf for those desiring to play, bridge, bingo or an automobile trip. Movies and a party are being planned for Friday evening while a banquet is arranged for the final night. Robert B. Magnus, chairman of the transportation committee, plans to have club cars on the Lackawanna train leaving Hoboken for the use of members and guests.

To Air Tax Grievances

The Association of American Soap & Glycerine Producers has been asked by the U. S. Treasury Department to present its views on changes that soap makers may think desirable in Federal internal revenue taxes. Soap manufacturers are invited by the Association to forward to its office, all ideas and recommendations which they may have on the issue. A private hearing before the Treasury will be held Wednesday, Oct. 18.

Germany Jails Soap Hoarder

Because he hoarded soap valued at 28 dollars, Gustav Schmidt, Hamburg, Germany, was recently sentenced to 18 months imprisonment. This was the first conviction under wartime regulations against hoarding of staples. Under the rationing system in effect, every German is allotted one stick of shaving soap every five months and about a quarter-pound of laundry soap a month.

Chicago Assn. Golf Winner

The Chicago Drug and Chemical Association was the winner over the Allied Drug and Cosmetic Association of Michigan in the annual inter-city golf tournament for the Fort Dearborn trophy, held at the Birmingham Golf Club, Detroit, Sept. 15th. Don Melville, president of the Michigan organization, provided entertainment for the thirty-five visitors. The Chicagoans were captained by their president, Elmer F. Smith of American Aniline Products Co. and secretary, Walter R. Nay, of Mallinckrodt Chemical Works.

Oppose Labor Ruling Denying Southern Wage Differential

Gillam Soap Works, Fort Worth, Texas, recently sent a letter to the United States Department of Labor protesting, what they claim, is an unfair wage ruling applying to bids on federal contracts. The letter in part is as follows: "Referring to your circular letter of July 28, 1939 in the matter of determination of the prevailing minimum wages in the soap industry, it is useless to state how disappointed we Southern soap manufacturers are in your setting this minimum at 40 cents per hour. It is contrary to every principle of justice and fair thinking and another indication that the Northern and Eastern manufacturers control this industry, and are determined that the South shall have no industries, if they can prevent it; and if the Southern plants are permitted to operate, they will not be permitted to furnish government contracts. It looks as though the wage ruling will force the small manufacturers in the South to confine their operations strictly to State business."

The letter continues "We have furnished considerable of our products to the Federal Government, but they have always been on a very close margin and with little profit. It seems the Federal Government is inconsistent in trying to force everyone to pay high prices and wages and at the same time use every possible means to force the manufacturers to furnish their goods without profit, so to speak, and cause all the trouble and inconvenience to those furnishing the same. It just doesn't make sense!"

"This letter will advise that it is utterly impossible, unthinkable for our firm to attempt to stay in business and pay the wages demanded by you in order to bid on Government contracts, and we will not bid on any more contracts as long as your order is in effect. However, we are going to ask that you give this matter further consideration."

Fair Labor Standards Act

The minimum wage required by the Fair Labor Standards Act rises from 25 to 30 cents an hour, and the maximum work week before overtime rates apply, drops from 44 to 42 hours, on Oct. 24, which marks the first anniversary of the effective date of the Act. All employees in interstate commerce who are not specifically exempted by the Act come under the new provisions.

Offers New Toilet Soap

Los Angeles Soap Co., Los Angeles, recently introduced a new toilet soap known as "Sierra Pine" soap, perfumed with a pine odor.

Answers P & G Tax Suit

Thomas J. Conner, Internal Revenue Collector at Cincinnati, has filed an answer in United States District Court to a suit, recently filed by the Procter & Gamble Company, in which it asked for refund of $688,863.99 paid as processing taxes on coconut and palm oils from the Philippines. It is contended the tax collection was based on Internal Revenue Bureau regulations contrary to the text of the act on which the tax is predicated. Conner's answer denies the company's claims and asks dismissal of the suit.

Kiefer Machine Appoints Bunn

Karl Kiefer Machine Co., Cincinnati, recently appointed C. M. Bunn as representative in the Midwest territory with headquarters at 76th and Vincennes Ave., Chicago.

New Rohm & Haas Product

Rohm & Haas Co., Philadelphia, recently developed a new synthetic detergent "Triton Suds," adapted for shampoos and liquid dentifrices. It is said to have high dispersing qualities against grease, oil, and solid soil, and to be stable in acid, neutral, or alkaline solutions. The product is said to be very light in color and odorless.

P & G Signs Stipulation

Procter & Gamble Co., Cincinnati, recently signed a stipulation with the Federal Trade Commission to stop representing that its product "Chipso" is safer for the hands than all other laundry soaps, that the detergent action of "Chipso" is substantially different from that of all other soaps, and that it is the only soap producing "shampoo" action or employing a "suction" principle. The company further agreed not to represent that "Chipso" is unqualifiedly safe for all materials, that it will never weaken threads, and will by itself protect clothes from washtub wear and tear.

Sayman Soap Campaign

T. M. Sayman Products Co., St. Louis, has launched a national advertising campaign designed to add grocery store distribution to the present drug store representation of its product "Sayman's Vegetable Wonder" soap. The soap will be featured in several of the national weeklies and newspapers in the middle-west. Supporting this campaign will be a dealer contest for outstanding displays.

Bobrick To Maintain Prices

Bobrick Manufacturing Corp., soap dispensers, New York, recently announced that it will continue its present price schedule, at least, until January 1. Although raw material prices have gone up, the Bobrick company anticipated the increases and is protected on raw materials until the above-mentioned date.

Fritzsche World's Fair Exhibit

Fritzsche Brothers, Inc., essential oils, New York, have a complete exhibit of their products in the Hall of Pharmacy at the New York World's Fair. It contains three display windows, one featuring the materials used in perfume making in their raw state, a second devoted to the products of the company's Seillans factory, and a third gives an idea of the industry's wide source of supply. On top of the exhibit is a series of photo enlargements showing views of the Fritzsche Bros. New York plant.

John H. Helfrich Dies

John H. Helfrich, president of Helfrich Laboratories, Chicago toilet goods manufacturers, died September 18th. Mr. Helfrich had never been able to recover completely from pneumonia which he had early in January. In 1935 he was president of the Chicago Perfumery, Soap and Extract Association and was also a member of the Chicago Drug and Chemical Association. Surviving are his widow, two daughters and two sons.

Research Institute Meets

F. W. Blair, Chemical Director of the Ivorydale plant of Procter & Gamble Company, and Donald Bradner, Director of Research of the Champion Paper & Fibre Company of Hamilton, Ohio, attended the September meeting in New York of the executive committee of the Industrial Research Institute. Fall and winter meetings will be held in Cincinnati, Chicago and Boston.

Edwin H. Watson Dies

Edwin H. Watson, vice-president, American British Chemical Supplies, Inc., New York, died at his home in Plandome, L. I., on September 24, following a long illness. He was a native of Belfast, Ireland, and prior to his coming to the United States in 1917, served as a member of the bar in Ireland and in the colonial service in East Africa. Mr. Watson, who was fifty-six years old, was also vice-president of Charles Tennant & Co., a subsidiary of American British Chemical Supplies. He is survived by his wife and a son.

Aniline Co. Adds to Staff

The Carolina Aniline & Extract Co., Charlotte, N. C., has recently appointed E. B. Wheeler and Thomas J. Hall to its sales staff. Mr. Wheeler will head the newly formed department specializing in all chemical phases of silk and rayon soaking, while Mr. Hall will head the department devoted to the dyeing, bleaching and finishing of piece goods.

A Boost FOR SOAP SALES!

A cleaner, whiter wash . . . due to powerful, water-softening, unique "peptizing" and iron repressive action! Increased sudsing power! Mild alkalinity! . . . These are a few of the outstanding characteristics that have helped VICTOR TETRASODIUM PYROPHOSPHATE climb to its present position as a soap builder . . . these are the qualities that have meant a boost in soap sales to our customers who have recognized their value as talking points for consumer advertising.

In expectation of the growing demand for TETRASODIUM PYROPHOSPHATE, Victor spent years developing an improved manufacturing technique adaptable to large scale production. By the time soap makers were ready for its use on a large scale, Victor was ready with ample facilities to meet the demand for a product of improved quality, made in the largest plant of its kind in existence.

TETRASODIUM PYROPHOSPHATE . . BY . .

VICTOR

HEADQUARTERS FOR . . . pHosphates

VICTOR CHEMICAL WORKS, 141 W. Jackson Boulevard, Chicago, Illinois

Plants: Nashville, Tenn.; Mt. Pleasant, Tenn.; Chicago Heights, Ill.

Offices: New York, N. Y.; Kansas City, Mo.; St. Louis, Mo.; Greensboro, N. C.

Study Effect on Soap Sales of Advertising and Displays

CONSUMER-SALES effect of an advertising campaign and the relationship between store displays and movement of goods over the counter has been determined in the soap field through a recent seven-months inventory study of New York independent grocery stores made by the Grocery Laboratory, a division of Burnett & Brenner. The results were published in *Sales Management*, issue of Sept. 15, 1939. According to the survey, fifteen nationally known brands of packaged household soaps were studied in an effort to get a complete picture of sales volume as a result of advertising pressure and point-of-sale displays. Of the total brands studied, over half showed violent ups and downs in sales over the seven month period, Nov. 1 to May 13, and of this number, "Oxydol" was chosen as a typical brand.

All through October, the survey reveals, Oxydol advertised its "Hi-Test" theme, and then on Nov. 10 broke its one-cent bowl offer in a heavy seven-newspaper schedule. Consumer demand appeared immediately, but distribution was spotty. Many dealers had requests they could not fill, but where the deal was received, retailers rushed to display the bowl. By Nov. 14 the number of stores displaying the special Oxydol deal was 24 per cent — double the number of displays during late October and early November. By November 28 the bowl had reached maximum distribution, 55 per cent, and sales of Oxydol had reached a peak. The bowl was popular with customers and was well received by dealers, but by mid-December the effect of the bowl offer was over and consumer sales had fallen from 13.6 per cent to 9.4 per cent.

Over the New York period Oxydol, without any new merchandising deal or new advertising push, started a modest comeback and gained about 1 per cent of the market. The comeback gathered momentum, however, when during the week of Jan. 15, Oxydol started a jingle contest in newspapers and in color magazine pages. For 20 consecutive week-days, Jan. 23 through March 3, they offered eight $100 prizes and at the end of each week the best 40 prize-winning jingles won an added $1,000. Oxydol's radio programs pushed the jingle contest in the first part of the contest with emphasis placed on newspaper advertising as the contest went along. However, during that period sales leveled off. Sixty-line copy in four papers called attention to the contest announcements on radio programs, but most of the newspaper advertisements were "Hi-Test" copy.

During the middle of February Oxydol's New York City advertising expenditures dropped from the $17,000 January level to about $13,000, and sales took a downward trend which wasn't checked until mid-March. The Jingle contest wasn't to expire until March 3, but maximum consumer sales were reached in the Feb. 5-18 period and these were not near the peak reached during the bowl offer in November. Dealer displays during the jingle contest were much less frequent than during the preceding bowl offer and there is a strong implication that lack of displays kept sales from rising to the previous peak obtained in November.

Oxydol sales during the latter part of March were only 9.2 per cent of the market, but on March 30 a one-cent "Glasbake," offer was announced in newspapers. To get this "20-cent value," small-size baking dish for one cent, the consumer had first to purchase the large-size package of Oxydol. Distribution of this special deal hit 35 per cent around the first of April and sales advanced sharply to a new high of 14.8 per cent of the market. Simultaneously with the one-cent offer, came an increase in Oxydol displays, a jump from 7 per cent to 24 per cent of stores, the highest number since the bowl offer in mid-November.

However, by the middle of April, the one-cent "Glasbake" offer had begun to lose its effectiveness and the major effect of the deal was past. Displays dropped from 24 per cent the first of April to 13 per cent on the fifteenth, and by April 29, Oxydol sales had dropped back to a level with that maintained prior to the "Glasbake" offer. Some stores had replaced the "Glasbake" offer with a special deal on the smaller size Oxydol box, by which the consumer bought one package at the regular price and got another for five cents.

By the middle of May the "Glasbake" offer was all but forgotten and Oxydol efforts were concentrated on the distribution of coupons entitling the holder to two free bars of laundry soap with the purchase of a large size box of Oxydol.

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Boston BIMS Golf Winners

H. B. Hawk, Valvoline Oil Co., was the winner of the grand prize at the second golf tournament and dinner of the BIMS of Boston, at the Charles River Country Club, Newton Centre, Mass., on Sept. 21st. Other prize winners were: Martin Schuehle, Merck & Co.; Joe Cunningham, Joseph Burnett Co.; Lew Zollinger, Tombarel Products Corp.; Clare Trombley, Monsanto Chemical Co.; Roy Schaberg, Anheuser-Busch, Inc.; Bob Kelly, Manufacturers' Representative; Jack McGlennon, Thompson-McGlennon Co.; Fred Webster, Sagamore Metal Goods Co., and Frank Langlois, United Drug Co. Robert Kelly, chairman, announced that the next party of the BIMS of Boston would be a "Christmas party."

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Buck-Jack Co. Moves

Buck Jack Co., manufacturers of the "K. C." line of soap products, Baltimore, has moved to new and larger quarters at 305 E. Federal Street.

PRICE'S STEARIC ACID

Triple Pressed

PREPARED FROM THE FINEST MATERIALS AND ENTIRELY FREE FROM ADULTERANTS

PRICE'S *triple pressed* STEARIC ACID is used by leading manufacturers of the finest toilet preparations, shaving creams and toilet soaps.
Of guaranteed English manufacture, it is highly crystalline and white in color.
Melting point is 130°-133° Fahrenheit.
World famous for its unvarying uniformity in quality.
Packed in slabs of about one inch thickness in double burlap bags with a third protective inner bag forming a muslin liner.

Quotations for carloads or less upon application to exclusive American Representatives:

ORBIS

PRODUCTS CORPORATION

215 PEARL STREET, NEW YORK - FACTORY & LABORATORY, NEWARK, N.J.

CHICAGO
831 N. Wabash Ave.

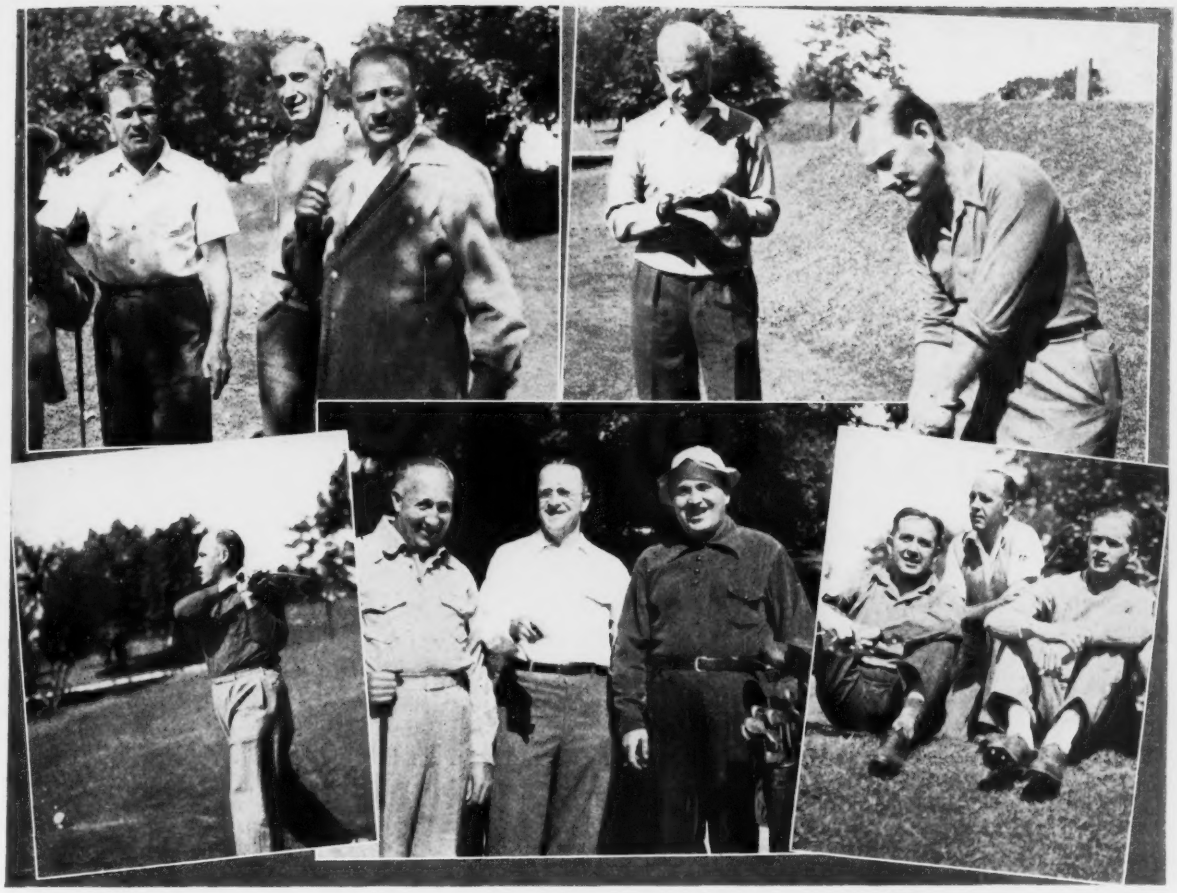
PHILADELPHIA
610 Brown Building

BOSTON
89 Broad Street

MEMPHIS, TENN.
1620 Carr Ave.

Water Soluble Gums	Waxes	Cosmetic Raw Material	Fruit Flavors
Filter Paper	Stearic Acid	Oleo Resins	Food Colors
Aromatics	Essential Oils	Perfume Bases	Quince Seed
Rice Starch	Zinc Oxide French	Olive Oil	Irish Moss

MANUFACTURED BY PRICE'S OF LONDON, ENGLAND



Chemical Salesmen Close 1939 Golf Season with Tournament at Pomonok Country Club.

Chem. Salesmen Golf Winners

More than eighty-five members and guests of the Salesmen's Association of the American Chemical Industry participated in the final golf tournament of the 1939 season held at Pomonok Country Club, Flushing, L. I. on Sept. 19th. Low gross for members was won by Charles Alexander, Seldner & Enequist, New York. Other winners were as follows: *Class A, low net*, A. W. Buehler, Barrett Co.; *Second*, Wayne Haley, Columbia Alkali Co.; *Class B, low net*, A. J. Higgins, Seldner & Enequist; R. E. Dorland, Dow Chemical Co.; *Guests, low net*, Dr. McDonough, Inecto, Inc. *Member kickers*, R. J. Quinn, Mathieson Alkali Works, and Leon Miller, Barrett Co.; *Guest Kickers*, E. Vanderwolk, White Tar Co. At the dinner, with 105 in attendance, Philip J. LoBue, Joseph Turner & Co., made the golf awards. Announcement was also made by Joseph Wafer, president of the association, that a meeting of the nominating committee, to pick a slate of officers for 1940, will be held at the Chemist's Club, New York, in early October.

New Detergent Folder

Community Products Co., New York, has just issued a new folder containing information about its new detergent product "Newtra." A whole page is devoted to comparisons between "Newtra" and a standard liquid soap on odor, viscosity, toxicity, free alkali, etc.

FTC Cites P. & G. Naphtha

The Federal Trade Commission recently accepted a stipulation from Procter & Gamble Co., Cincinnati, in which the company agreed to discontinue advertising that its product "P. & G. White Naphtha Soap" contains a unique ingredient which makes it the only soap that will remove stubborn "deep-down" dirt from clothes, and that it is kind to all sorts of fabrics and colors. Also that it enables one to cut washing time, or that it loosens dirt faster or washes clothes whiter.

Armour Introduces "Perk"

Armour & Co., Chicago, is now conducting a test campaign in five mid-west cities for its new product "Perk", a granulated household soap. The company is using charts in its newspaper advertising to show "Perk's" lathering ability as compared with other brands. The test will continue for 13 weeks.

Mich. Alkali Appoints Finch

Michigan Alkali Co., New York, has appointed Ernest V. Finch as executive in charge of sales, replacing Irving Taylor who has been ill for some time.

FOR YOUR PRODUCT'S PROTECTION...

WITH the growing uncertainty of raw material arrivals from abroad, soap manufacturers can best protect their future requirements by using **strictly American-made** materials. DUROFIX—acknowledged one of the best perfume fixatives for soap—commands immediate consideration for that reason. Composed **entirely** of readily obtainable, American-made ingredients, its availability for later demands can be safely relied upon.

Aside from this timely consideration, DUROFIX offers the soapmaker other decided advantages. It mixes readily, for example, with all essential oils and aromatic chemicals; it may be used in all types of soap—cake, liquid or powdered, in bath salts, etc.; it will not discolor white soaps nor will it hydrolize or saponify. We suggest you try it. Substitute DUROFIX for a portion of your perfume concentrate and observe how much fuller, more lasting and appealing is its fragrance. A request will bring testing sample for whatever floral type you specify.

FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE

BIMS Golf Winners

Awards were made to nineteen prize winners at the BIMS September Golf Tournament held at White Beeches, Haworth, N. J. on September 14th. They were: William Neilson, Harold F. Ritchie & Co.; H. Whitaker, Bourjois, Inc.; Herman Reinhardt, American Home Products; James B. Walker, Hazel-Atlas Glass Co.; E. A. Bush; Kent S. Upham, Owens-Illinois Glass Co.; C. R. Keeley, Toilet Requisites; Harry G. Griffiths, Pennsylvania Drug Co.; Paul Miller, Int'l Cellucotton Products Co.; C. C. Bryan, Fritzsche Bros., Inc.; Frank L. Kiernan, Kiernan-Hughes Co.; Peter L. Forsman, C. H. Forsman & Co.; L. H. Schultes, Hewitt Soap Co.; George E. Esslinger, United Drug Co.; Frank W. Mahr, Blake Mfg. Co.; Fred W. Webster, Sagamore Metal Goods Co.; Joseph F. Kelly, Hagerty Bros. & Co.; H. Ambrose, Topics Publishing Co., and Augustus H. Bergmann, Oxzyn Co. The final BIMS outing of the season will be held at Lakeville, Long Island, on October 19th.

Wants Tooth Paste Agency

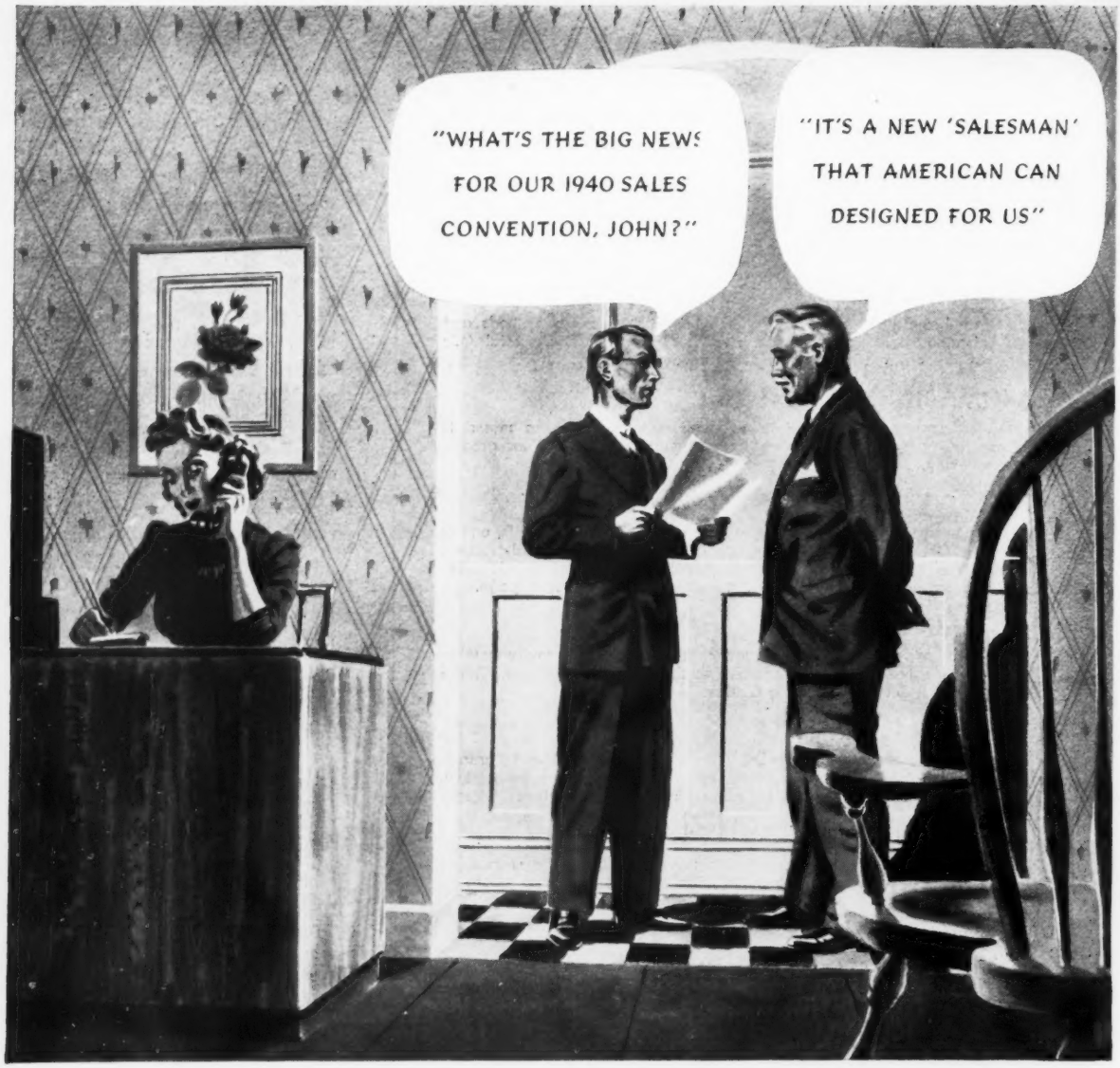
A firm in Singapore, Straits Settlements, would like to establish an agency for the sale of American tooth paste. Further information may be had by writing to the U. S. Bureau of Foreign and Domestic Commerce, referring to File No. 3681.

Chicago Drug Assn. Meets

The Chicago Drug & Chemical Association started its fortieth year of activities Sept. 28 with a luncheon meeting at the Chicago Athletic Club. Guest of honor was Dr. Watson W. Gailey, noted surgeon, of Bloomington, Ill.

Carbide Acquires Bakelite

The board of directors, Union Carbide and Carbon Corp., New York, recently approved a merger with the Bakelite Corp., also of New York. Under the agreement, Carbide will acquire all the assets of the Bakelite Corp., with 187,500 shares of Carbide common stock being exchanged for the Bakelite assets.



"You see, Bill, I'd felt for a long time that a container which just 'holds' a product is *really holding it back!* So I called American Can in and put our problem up to them. They've developed a container which will be a salesman for us. Its appearance will attract new customers. Its added convenience will make people like to use it. Its ability to keep the quality of our product intact will mean more satisfied users!"

CANCO **AMERICAN CAN COMPANY, 230 PARK AVENUE, NEW YORK, N. Y.**

Contracts Awarded

Treasury Toilet Soap Bid

Waxaid Co., Baltimore, bid low on 1,800 gals. toilet soap at 16.49c in a recent opening by the Treasury Procurement Supply at Washington, D. C. At the same opening, Los Angeles Soap Co., Los Angeles, bid low on 14,400 lbs. laundry soap at 2.65c.

Washington Caustic Soda Bid

B. T. Babbitt, Inc., New York, submitted the low bid of 4.6c on 8,640 cans caustic soda in a recent opening by the Treasury Procurement Supply at Washington, D. C.

Jeffersonville Polish Award

Joseph Dixon Crucible Co., Jersey City, was awarded the contract on 32,000 cakes stove polish at 3.95c in a recent opening by the Army Quartermaster at Jeffersonville, Ind. Other contracts awarded at the same opening were Pennsylvania Salt Mfg. Co., Philadelphia, 80,000 cans caustic soda at 4.45c, and Sterling Supply Corp., Philadelphia, 22,000 cakes grit soap at 2.22c.

Wright Field Soap Awards

Nielco Chemical Co., Detroit, was awarded the contract on 1,210 cans scouring powder at 12c in a recent opening by the Army Air Corps at Wright Field, Ohio. At the same opening, Colgate-Palmolive-Peet Co., Jersey City, N. J., was awarded the contract on 750 cakes grit hand soap at 1.89c, and Jas. Good, Philadelphia, was awarded the contract on 895 cans liquid soap at 25.96c.

Air Corps Cleaner Bid

R. M. Hollingshead Corp., Camden, N. J., submitted the low bid of 14c on 13,303 gals. dry cleaning solvent in a recent opening by the Army Air Corps at Wright Field, Ohio.

Soft Soap Bid

Crystal Soap & Chemical Co., Philadelphia, bid low on 19,500 lbs. soft soap at 3.98c in a recent opening by the Army Air Corps at Wright Field, Ohio.

Disinfectants Bid

Crystal Soap & Chemical Co., Philadelphia, bid low on 160 gal. disinfectant at 49.4c in a recent opening by the Treasury Procurement Supply at Washington, D. C.

Automobile Soap Bid

Davies-Young Soap Co., Dayton, O., bid low on 3,000 lbs. automobile soap at 4.4c in a recent open by the Treasury Procurement Supply at Washington, D. C. At the same opening, Colgate-Palmolive-Peet Co., Jersey City, N. J., bid low on 60,000 lbs. chip soap at 5.36c.

Bid on Wiping Cloths

Philadelphia Wiper & Supply Co., Philadelphia, submitted the low bid of 10.25c on 4,000 lbs. wiping cloth in a recent opening by the Treasury Procurement Supply at Washington, D. C.

Liquid Cleaner Bid

R. M. Hollingshead Corp., Camden, N. J., bid low on 770 gals. cleaner at 23c in a recent opening by the Treasury Procurement Supply at Washington, D. C. At the same opening, Stephens Soap Corp., Brooklyn, bid low on 4,800 lbs. scouring powder at 1.7c.

Washington Cleanser Bid

Armour & Co., Chicago, submitted the low bid of 2.33c on 6,000 cans cleanser in a recent opening by the U. S. Marine Corps at Washington, D. C. At the same opening, Industrial Distributors, New York, bid low on 288 qts. furniture polish at 12.5c.

Washington Soap Bids

Mione Manufacturing Co., Collingdale, Pa., bid low on 8,640 lbs. soap at 3.8c in a recent opening by the Treasury Procurement Supply at Washington, D. C. Another low bidder at the same opening was Sterling Supply Corp., Philadelphia, at $5.11 cwt. for 120,000 lbs. soap.

Toilet Soap Bid

Colgate - Palmolive - Peet Co., Jersey City, N. J., bid low on 9,500 lbs. toilet soap at 8.09c in a recent opening by the Treasury Procurement Supply at Washington, D. C.

Green Soap Bid

Harley Soap Co., Philadelphia, bid low on 12,000 lbs. green soap at $924 in a recent opening by the Veterans Administration Supply at Perry Point.

Hard Soap Bids

Kranich Soap Co., Brooklyn, made the following low bids in a recent opening by the Veterans Administration Supply at Washington, D. C. On 240 lbs. hard soap, $30.48; on 176 lbs. hard soap, $22, and on 18 cartons of hard soap, $67.20.

Treasury Disinfectant Bid

Murphy Products Co., Governeur, N. Y., submitted the low bid on 1,100 gals. disinfectant at 38.5c in a recent opening by the Treasury Procurement Supply at Washington, D. C.

Unilever Stock Exchanged

Lever Brothers & Unilever N. V., London, have just announced that holders of the Fl. 2,650,000 6 per cent cumulative preference "A" shares of N. V. Maatschappij tot Exploitatie van Zeepfabrieken, which comprises the entire issue of preferred stock, may exchange their shares for an equivalent amount in 6 per cent cumulative preferred shares in Lever Bros. & Unilever N. V.

Opens Consulting Office

Albert I. Kegan, formerly with the U. S. Food and Drug Administration and the Chemistry Faculty of Armour Institute of Technology, has opened an office at 53 W. Jackson Blvd., Chicago, where he will act as a consulting chemist.

No Spur-of-the-Moment
"WAR BABIES"
These!

Long before the war situation spotlighted attention on substitutes for hard-to-obtain and price-zooming essential oils, M M & R was marketing these quality substitutes for economy-minded producers.

In short, these are not emergency products devised in haste, but prime quality compounds that have and can be used for purpose of trimming costs without sacrificing quality or product identity.

Testing samples available. For best results, full information is requested so that we may advise how to use these substitutes most advantageously.

JAPP-O
Substitute for
OIL CAMPHOR WATER WHITE

SASS-O
Substitute for
OIL CAMPHOR SASSAFRASSY

FORM-O-SAS
Substitute for
OIL SASSAFRAS ARTIFICIAL

These substitutes closely match the general odor character and solvent properties of the oils they replace. Their price provides for considerable savings.

In virtually every instance where a producer has told us the limit of his budget, M M & R has succeeded in meeting the requirements under the allowed production budget. Let us know your requirements and your price limitations. There is reason to believe that we can effect an economy.

MAGNUS, MABEE & REYNARD, INC.

QUALITY ESSENTIAL OILS, BALSAMS — AROMATIC CHEMICALS, ETC. SINCE 1895

16 DESBROSSES ST. — NEW YORK, N. Y.

CHICAGO: 180 N. WACKER DRIVE . . . CANADA: RICHARDSON AGENCIES, LTD., 454 KING ST., W., TORONTO

New Trade Marks

The following trade-marks were published in the September issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

TRAG—This in solid letters describing laundry and industrial cleanser. Filed by Franklin Chemical Co., Rochester N. Y., May 29, 1939. Claims use since May 12, 1939.

HUSKIER—This in solid letters with line drawn underneath, describing soap chips. Filed by Fels & Co., Philadelphia, June 10, 1939. Claims use since May 22, 1939.

NALO—This in stenciled letters describing granular cleaner. Filed by Naylee Chemical Co., Philadelphia, June 23, 1939. Claims use since June 20, 1939.

CUE—This in solid letters describing liquid dentifrice. Filed by Colgate-Palmolive-Peet Co., Jersey City, N. J., July 11, 1939. Claims use since June 30, 1939.

PRIMASEAL—This in solid letters describing floor sealer. Filed by Socony-Vacuum Oil Co., New York, June 3, 1939. Claims use May 17, 1939.

ALVAREZ SUDDEN CLEANER ASC—This in solid letters describing cleanser. Filed by Alvarez Manufacturing Co., Laredo, Tex., June 4, 1938. Claims use since May 1, 1935.

MOE-NADE—This in solid letters describing cleaner. Filed by Moe-Nade Laboratories, Denver, Colo., May 8, 1939. Claims use since Sept. 1, 1938.

HOL—This in solid letters describing soap. Filed by The Lanitt Co., Boston, June 20, 1939. Claims use since December, 1938.

DRUCO—This in script letters describing soap. Filed by Philadelphia Wholesale Drug Co., Philadelphia, May 26, 1939. Claims use since June 30, 1931.

TRI-SCATT—This in solid letters describing wax remover. Filed by Geo. D. Moore, Chicago, June 23, 1939. Claims use since May 31, 1939.

DN—This in solid letters describing insecticide. Filed by Dow Chemical Co., Midland, Mich., July 8, 1939. Claims use since June 13, 1939.

DN-DRY MIX—This in solid letters describing insecticide. Filed by Dow Chemical Co., Midland, Mich., July 8, 1939. Claims use since June 13, 1939.

DN-OIL—This in solid letters describing insecticides. Filed by Dow Chemical Co., Midland, Mich., July 8, 1939. Claims use since June 13, 1939.

DN-SULFUR DUST—This in solid letters describing insecticides. Filed by Dow Chemical Co., Midland, Mich., July 8, 1939. Claims use since June 13, 1939.

S V—This in outlined letters with "S" above "V", describing soaps and cleansers. Filed by Sandy Valley Grocery Co., Ashland, Ky., June 28, 1939. Claims use since May 19, 1939.

MAS Co.—This in small outline letters with "MAS" above "Co.", both inside of diamond shaped figure of contrasting color, describing hand soap. Filed by Master Sales Co., Chicago, July 12, 1939. Claims use since July 1, 1939.

SAND FLY STAY-AWAY—This in solid letters describing insecticide. Filed by Tropical Insecticide Co., Fort Lauderdale, Fla., May 26, 1939. Claims use since March, 1937.

SCUD—This in outlined letters describing disinfectant. Filed by Scud Research Laboratories, Calumet Park, Ill., June 10, 1939. Claims use since May 16, 1939.

BATHSHEEN—This in shaded letters describing water softener. Filed by Harriet Hubbard Ayer, Inc., New York, July 13, 1939. Claims use since May 1, 1938.

VEECO—This in solid letters describing polish. Filed by Veeco Chemical Products Co., Cincinnati, May 15, 1939. Claims use since April 27, 1939.

NU-MET—This in solid letters describing metal polish. Filed by The Nu-Met Chemical Corp., New York, Jan. 3, 1939. Claims use since June 1, 1938.

NATTY NED—This in solid letters alongside of which is a picture of a man with brightly polished shoes, describing shoe polish. Filed by Hecker Products Corp., New York, March 31, 1939. Claims use since Feb. 15, 1937.

G-WIZ—This in solid letters describing liquid cleaner. Filed by Brenner's, Inc., Belleville, Ill., May 23, 1939. Claims use since May 15, 1939.

MIRORBRITE—This in script letters describing silver cleaner and polish. Filed by Mirorbrite Chemical Co., Newport News, Va., June 5, 1939. Claims use since Feb. 1, 1934.

DREX-KLEEN—This in stenciled letters describing solvent for cleaning clothes. Filed by Detroit Rex Products Co., Detroit, June 29, 1939. Claims use since May 29, 1939.

PERM-A-KLEEN—This in stenciled letters describing solvent for cleaning clothes. Filed by Detroit Rex Products Co., Detroit, June 29, 1939. Claims use since May 26, 1939.

STREAM LINE—This in solid letters above streamlined train, describing shampoo. Filed by La Charma Co., Tampa, Fla., May 27, 1939. Claims use since March 1, 1938.

JAP-PAX—This in solid letters describing insecticide. Filed by Morris B. Reade, Inc., Belleville, N. J., June 24, 1939. Claims use since July 1, 1938.

DISPERSOL—This in stenciled letters describing an insecticide base oil. Filed by Shell Oil Co., St. Louis, June 24, 1939. Claims use since March 13, 1939.

CREOGEN—This in letters in relief describing poultry and live stock disinfectant. Filed by Nyal Co.,

No Sleuth Could Get a CLEAR SOLUTION Quicker Than Warner TSPP

Cleansing, wetting, softening and dispersing agent extraordinary, Tetra Sodium Pyrophosphate is also outstanding as a clarifier. When used with or in place of other agents, TSPP transforms water into a solution of crystal clearness . . . a stable clearness sustained even under high temperatures.

An oldtimer in the chemical laboratory, TSPP was commercially "discovered" with almost overnight suddenness. But Warner, pioneer in the production of phosphates in America, was not unprepared for this swift recognition of the "new" detergent. Almost 10 years ago, Warner had pilot plant production of TSPP and 5 years ago was making carload shipments.

Today we have large capacity production facilities and also have a solid background of technical and production experience . . . experience which we will be very glad to have you draw upon in your use of TSPP.

Your inquiry for prices, samples and technical data will have immediate and confidential handling. There is, of course, no obligation.

OTHER WARNER CHEMICALS

Tetra Sodium Pyrophosphate
Acid Sodium Pyrophosphate
Phosphoric Acid
Sodium Phosphates
(mono, di-and tri basic)
Liquid Caustic Potash
Chlorine, Liquid
Sulfur Chloride
Carbon Tetrachloride
Trichlorethylene
Carbon Bisulfide
Sodium Sulfide
Blanc Fixe
Barium Carbonate
Epsom Salt
Hydrogen Peroxide
Alumina Hydrate, Light
Chemical Grade Magnesia

CHEMICAL WARNER COMPANY

DIVISION OF
WESTVACO CHLORINE PRODUCTS CORPORATION

CHRYSLER BUILDING, NEW YORK, N. Y.

Detroit. June 29, 1939. Claims use since June 23, 1939.

TROJAN—This in solid letters describing insecticides. Filed by Rose Manufacturing Co., Philadelphia, July 27, 1939. Claims use since Sept. 19, 1930.

KILLOGEN—This in solid letters describing insecticides. Filed by Rose Manufacturing Co., Philadelphia. July 27, 1939. Claims use since Jan. 14, 1930.

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Trade Marks Granted

370,166. Liquid Cleaning Preparations. General Tire & Rubber Co., Akron, Ohio. Filed July 30, 1936. Serial No. 381,612. Published June 6, 1939. Class 4.

370,181. Metal Polish. Seagram Chemical Co., Passaic, N. J. Filed April 4, 1938. Serial No. 404,863. Published May 30, 1939. Class 4.

370,222. Cleaning Powders. Dentabrite Laboratories, Portland, Oreg. Filed January 27, 1939. Serial No. 415,315. Published May 30, 1939. Class 4.

370,224. Cleaning Preparation. The Mathieson Alkali Works, Inc., New York. Filed February 2, 1939. Serial No. 415,518. Published May 30, 1939. Class 4.

370,229. Liquid Soap. Rochester Germicide Co., Rochester, N. Y. Filed February 10, 1939. Serial No. 415,912. Published May 30, 1939. Class 4.

370,247. Soap Chips. H. E. Butt Grocery Co., Harlingen, Tex. Filed March 11, 1939. Serial No. 416,944. Published May 30, 1939. Class 4.

370,250. Liquid Cleaning Preparation. The Curran Corp., Malden, Mass. Filed March 15, 1939. Serial No. 417,084. Published May 30, 1939. Class 4.

370,258. Shaving Cream. Colgate-Palmolive-Peet Co., Jersey City, N. J. Filed March 21, 1939. Serial No. 417,329. Published June 6, 1939. Class 4.

370,265. Granulated Soap. Safeway Stores, Inc., Oakland, Calif. Filed March 24, 1939. Serial No. 417,475. Published May 30, 1939. Class 4.

370,274. Granular Synthetic Detergent. General Mills, Inc., Minneapolis. Filed March 29, 1939. Serial No. 417,609. Published June 13, 1939. Class 4.

370,278. Resin Used in Soaps. Hercules Powder Co., Wilmington, Del. Filed April 1, 1939. Serial No. 417,761. Published June 6, 1939. Class 1.

370,309. Furniture Polish. Blue Label Manufacturing Co., Great Falls, Mont. Filed April 11, 1939. Serial No. 418,090. Published June 13, 1939. Class 16.

370,322. Toilet Soaps. H. E. Jarvis & Co., Ltd., London, England. Filed April 18, 1939. Serial No. 418,409. Published June 6, 1939. Class 4.

370,394. Shampoo. Enterprise Laboratories, New Haven, Conn. Filed March 10, 1938. Serial No. 403,890. Published June 13, 1939. Class 6.

370,399. Insecticide. Ferry-Morse Seed Co., Detroit. Filed April 16, 1938. Serial No. 405,353. Published June 6, 1939. Class 6.

370,415. Dry Cleaning Solvents. The Dow Chemical Co., Midland, Mich. Filed October 20, 1938. Serial No. 411,826. Published June 20, 1939. Class 4.

370,416. Dry Cleaning Solvents. The Dow Chemical Co., Midland, Mich. Filed October 20, 1938. Serial No. 411,827. Published June 20, 1939. Class 4.

370,425. Cleaning Preparation. Hercules Powder Co., Wilmington, Del. Filed November 10, 1938. Serial No. 412,602. Published June 20, 1939. Class 4.

370,432. Glass Cleaner. Trico Products Corp., Buffalo, N. Y. Filed December 2, 1938. Serial No. 413,424. Published January 24, 1939. Class 4.

370,433. Glass Cleaner. Trico Products Corp., Buffalo, N. Y. Filed December 2, 1938. Serial No. 413,425. Published February 14, 1939. Class 4.

370,441. Dentifrice. Andresin Laboratories, Springfield Gardens, N. Y. Filed December 31, 1938. Serial No. 414,421. Published June 6, 1939. Class 6.

370,452. Insecticides. Solvay Process Co., New York. Filed January 27, 1939. Serial No. 415,304. Published June 6, 1939. Class 6.

370,453. Insecticides. Solvay Process Co., New York. Filed January 27, 1939. Serial No. 415,305. Published June 6, 1939. Class 6.

370,481. Insecticide. Eez Co., Jamaica, N. Y. Filed March 2, 1939. Serial No. 416,607. Published May 30, 1939. Class 6.

370,483. Tooth Powder, Standard Antiseptics Inc., New York. Filed March 4, 1939. Serial No. 416,706. Published June 6, 1939. Class 6.

370,506. Shampoo Treatment. Amirol-Admiracion Sales Corp., Newark, N. J. Filed March 22, 1939. Serial No. 417,355. Published June 6, 1939. Class 6.

370,543. Insecticides. General Chemical Co., New York. Filed April 7, 1939. Serial No. 417,963. Published June 13, 1939. Class 6.

370,551. Cleaning Chemical. Kleenco Boiler Products Co., New York. Filed April 10, 1939. Serial No. 418,082. Published June 13, 1939. Class 6.

370,563. Disinfectant and Cleanser. F. Uddo & Sons, New Orleans, La. Filed April 14, 1939. Serial No. 418,276. Published June 6, 1939. Class 6.

370,568. Insecticide. Carr Chemical Co., Columbus, Ga. Filed April 17, 1939. Serial No. 418,369. Published May 30, 1939. Class 6.

370,580. Tooth Powder. Shapira Chemical Co., San Anselmo, Calif. Filed April 19, 1939. Serial No. 418,449. Published May 30, 1939. Class 6.

370,584. Soap. Lever Brothers Co., Cambridge, Mass. Filed April 20, 1939. Serial No. 418,485. Published June 20, 1939. Class 4.

370,585. Insecticides. Sherwin-Williams Co., Cleveland. Filed April 20, 1939. Serial No. 418,497. Published May 30, 1939. Class 6.

370,615. Dentifrice. American Ferment Co., New York. Filed May 1, 1939. Serial No. 418,911. Published June 20, 1939. Class 6.

Say You Saw It in Soap!

THE average business house receives a great many inquiries for its products or services every year which cannot be attributed to any special source. A vast majority of these probably originate from some form of advertising but, due to the general tendency toward not mentioning the names of publications, cannot be directly traced.

When you write to anyone advertising in this publication, say you saw it in SOAP. The advertiser will appreciate it—and so will we!

The Publishers

Raw Material Markets

As of Sept. 28, 1939

NEW YORK—As might be expected, prices in the soap and sanitary chemical raw material market made substantial advances this period, with the oils and fats commodities making the principal gains. The usually placid chemical, essential oil and aromatic chemical markets also came to life, and numerous gains were noted throughout these lists. Insecticide raw material prices remained fairly even, but gum and wax prices did not escape the effect of the war situation.

CHEMICALS

Glycerin

Price and general stability were maintained in the glycerin market this period, in spite of advances in the price of other war materials. Regular buyers of glycerin were getting all they needed, but speculative buyers found it difficult to get goods. Glycerine producers are trying to satisfy every legitimate domestic need, and at the same time prevent speculation and hoarding by outsiders seeking to profit from the international situation.

Mercury Bichloride

The sharpest price change in the chemical list this period was in mercury bichloride, which advanced 82 cents per pound. It is now quoted at $1.99 to $2.14 per pound as compared to $1.17 to $1.32 in the previous period.

Rosin

Prices on some grades of rosin were increased as much as 70 cents per barrel this period, with other grades advancing in smaller amounts. Buyers were inclined to hold off and await further developments. It is believed that this holding off will be of short duration, however, as consumers are thought to be carrying relatively light supplies. There were reports of an increase in export trade in rosin, inquiries being received from Europe, South America and the Far East.

Adeps Lanae

The lanolin market was marked by advances in both hydrous and anhydrous grades this period. The hydrous grade being quoted at 25 to 26 cents per pound as compared to 16 to 18 cents per pound the previous period. The anhydrous material is now quoted at 26 to 27 cents per pound as against 17 to 19 cents last period.

OILS AND FATS

Coconut Oil

Coconut oil prices commenced their upward moevment with the start of the European War and are now almost 2 cents above the figures quoted last period. The increase, amounting to about 50 per cent, was eased, however, by the fact that last month's quotations were the lowest in four years, and that present prices are still below normal averages. Offerings are reported light with some sellers unwilling to quote. Sales of tanks, New York, at 4½ cents per pound have been reported. This compares with 2¾ cents for the last period.

Tallow

The tallow market continues to be featured by a firm tone after a sharp rise in prices during the early part of the period. Offerings are small. Some transactions of extra tallow were reported at 6¾ cents per pound as compared with a figure of 4⅜ cents during the last period. Quotations on special have advanced from 4¼ cents per pound last period to 6⅝ cents this period.

Linseed Oil

A sharp advance in flaxseed prices in the Buenos Aires market was reflected in an advance in prices of the oil by American crushers. The war situation has had definite influence on demand and has resulted in a number of large contracts. Prices on all grades have advanced 2 cents per pound over the previous quotations. The first official estimate of the area under flaxseed in Argentina for the new season shows an increase of 12 per cent over the previous season.

Olive Oil

Offerings of olive oil and foots were extremely light this period, with sellers uncertain as to future supplies. Foots are virtually unobtainable, with stocks here almost exhausted. Denatured olive oil is being quoted by some sources at $1.35 per pound as compared to 80 cents last period.

Grease

Although there was a good inquiry in the grease market this period, transactions were curtailed by inadequate supplies. Prices advanced about 2 cents per pound on both white and yellow grades.

PERFUMING MATERIALS

Citronella Oil

Typical of the rest of the essential oil market was the firmness exhibited in citronella oil this period. Java and Ceylon oil which reversed their relative price positions the early part of this year are now about on par. Java oil is selling at 35 cents as compared to 27 cents last period, and Ceylon oil is now quoted at 36 cents as against 31 cents in the previous period.

Lemon Oil

No contracts were being written in Lemon oil this period, prices being purely for spot delivery. The Italian oil was advanced to $3.50 per pound, comparing with a previous price of $3.30. The California oil remained strong at $3.00 per pound as against $2.50 last period.

Raw Material Prices

(As of Sept. 25, 1939)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .05¾	$ .06¼
Acid, Boric, bbls., 99½%	ton	106.00	138 00
Cresylic, drums	gal.	.49	.50
Low boiling grade	gal.	.55	.56
Muriatic, C. P., carboys	lb.	.06½	.08
Oxalic, bbls.	lb.	.10¾	.12
Adeps Lanae, hydrous, bbls.	lb.	.25	.26
Anhydrous, bbls.	lb.	.26	.27
Alcohol, Ethyl, U.S P., bbls.	gal.	4.56½	4.59½
Complete Denat., SD 1, drums, ex.	gal.	.27½	.30½
Alum. Potash lump	lb.	.036	.038
Ammonia Water, 26°, drums	lb.	.02	.02¼
Ammonium Carbonate, tech., bbls.	lb.	.08	.12½
Bentonite, 1, works	ton	—	16.00
Bentonite, 2, works	ton	—	11.00
Bleaching Powder, drums	100 lb.	2.25	3.35
Borax, pd., cryst., bbls., kegs	ton	58.00	74.00
Carbon Tetrachloride, car lots	gal.	.66½	.87
L. C. L.	gal.	.73	1.17
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	10.00	25.00
Cresol, U.S P., drums	lb.	.09½	.10
Creosote Oil	gal.	.13½	.14½
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.05¾	.06¼
Fullers Earth	ton	10.00	32.00
Glycerine, C. P., drums	lb.	.12½	.13
Dynamite, drums	lb.	—	Nom.
Saponification, drums	lb.	.09	.10
Soap, lye, drums	lb.	.07¾	Nom.
Hexalin, drums	lb.	.80	—
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live. bbls.	per bbl.	—	2.45
Mercury Bichloride, kegs	lb.	1.99	2.14
Naphthalene, ref. flakes, bbls.	lb.	.05¾	—
Nitrobenzene (Mirbane) drums	lb.	.08	.09
Paradichlorbenzene, bbls., kegs	lb.	.12½	.15½
Petrolatum, bbls. (as to color)	lb.	.02⅝	.03⅞
Phenol (Carbolic Acid), drums	lb.	.13	.13¾
Pine Oils, bbls.	gal.	.52	.59
Potash, Caustic, solid	lb.	.06¼	.06¾
Flake, 88-92%	lb.	.07	.07½
Liquid, 45% basis	lb.	.03⅛	.03¼
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.03	.03½
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	5.15	6.80
Grade K to N	bbl.	6.90	7.00
Grade WG to X	bbl.	7.20	7.50
Wood	bbl.	4.35	6.00
Rotten Stone, pwd. bbls.	lb.	.08½	.10
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04½
Olive Castile, bars	lb.	.32	—
Olive Castile, powder	lb.	.35	—
Powdered White, Neutral	lb.	.19	.22
Olive Oil Foot, bars, 68-70%	lb.	.11	—
Green, U.S.P.	lb.	.12	—
Tallow Chips, 88%	lb.	.08¾	—
Soda Ash., cont., wks., bags, bbls.	100 lb.	1.08	1.35
Car lots, in bulk	100 lb.	.90	.95
Soda Caustic, cont., wks., solid	100 lb.	—	2.30
Flake	100 lb.	—	2.70
Liquid, tanks, 47-49%	100 lb.	—	1.95
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	15.00	15.60
Sodium Fluoride, bbls.	lb.	.07½	.08¾
Sodium Hydrosulfite, bbls.	lb.	.16	.17
Sodium Metasilicate, ground	100 lb.	2.20	3 15
Crystalline	100 lb.	2.90	4.20
Sodium Pyrophosphate	100 lb.	5.10	5.55
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.21	.28
Triethanolamine	lb.	.19	.20
Trisodium Phosphate, bags, bbls.	lb.	.02	.026
Zinc Oxide, lead free	lb.	.06½	.07¾

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.07½	Nom.
Castor, No. 1, bbls.	lb.	.11¼	.12
No. 3, bbls.	lb.	.09¼	.10
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.04½	—
Tanks, Pacific Coast, futures	lb.	.02½	—
Copra, bulk, coast	lb.	.0220	—
Corn, tanks, mills	lb.	.07	.09¾
Cottonseed, crude, tanks, mill	lb.	.06	.06⅛
PSY, futures	lb.	.07	.0790
Fatty Acids,			
Corn Oil, tanks	lb.	.08¾	.09
Coconut Oil, tanks	lb.	.08¾	.09
Cotton Oil, tanks	lb.	.08	.08¼
Settled soap stock	lb.	.03½	.03¾
Boiled soap stock, 65%	lb.	.04½	.04¾
Foots, 50%	lb.	.02	.02⅛
Linseed Oil	lb.	.11½	.12½
Red Oil, bbls., dist. or sapon.	lb.	.09⅜	.10⅛
Tanks	lb.	.08½	.09½
Stearic Acid,			
Double pressed	lb.	.12½	.13½
Triple pressed	lb.	.15¼	.16¼
Greases, choice white, bbls.	lb.	.06¾	.07¼
Yellow	lb.	.06	.06½
Lard, city	lb.	.09¾	—
Linseed, raw, bbls.	lb.	.1040	.1120
Tanks, raw	lb.	.0980	.1040
Boiled, 5 bbl. lots	lb.	.1210	.1230
Olive, denatured, bbls., N. Y.	gal.	1.35	Nom.
Foots, bbls., N. Y.	lb.	.10	—
Palm, shipment	lb.	No Prices	
Palm, Kernel, shipment	lb.	No Prices	
Sesame Oil, dms.	lb.	.11	—
Soya Bean, domestic, tanks, crude	lb.	.06½	—
Stearine, oleo, bbls.	lb.	.11½	—
Tallow, special, f.o.b. plant	lb.	.06⅝	—
City, ex. loose, f.o.b. plant	lb.	.06¾	—
Teaseed Oil, crude	lb.	.13½	—
Whale, refined	lb.	.0910	—

(As of Sept. 25, 1939)

Essential Oils

Almond, Bitter, U.S.P.	lb.	$1.90	$2.00
Bitter, F. F. P. A.	lb.	1.95	2.05
Sweet, cans	lb.	.95	—
Anise, cans, U.S.P.	lb.	.85	—
Bay, tins	lb.	1.20	1.25
Bergamot, coppers	lb.	4.00	—
Artificial	lb.	1.25	1.30
Birch Tar, rect. tins	lb.	.60	.65
Crude, tins	lb.	.25	—
Bois de Rose, Brazilian	lb.	1.60	—
Cayenne	lb.	1.50	1.75
Cade, cans	lb.	.40	.42
Cajeput, native, tins	lb.	.50	—
Calamus, tins	lb.	5.50	—
Camphor, Sassy, drums	lb.	.28	Nom.
White, drums	lb.	.34	Nom.
Cananga, native, tins	lb.	1.35	—
Rectified, tins	lb.	1.80	—
Caraway Seed	lb.	2.75	—
Cassia, Redistilled, U.S.P.	lb.	1.15	—
Cedar Leaf, tins	lb.	.62	—
Cedar Wood, light, drums	lb.	.28	.30
Citronella, Java, drums	lb.	.35	—
Citronella, Ceylon, drums	lb.	.36	—
Clove, U.S.P., tins	lb.	1.60	—
Eucalyptus, Austl., U.S.P., cans	lb.	.57	—
Fennel, U.S.P., tins	lb.	1.95	—
Geranium, African, cans	lb.	2.75	Nom.
Bourbon, tins	lb.	2.75	Nom.
Turkish	lb.	2.50	Nom.
Hemlock, tins	lb.	.65	.70
Lavender, U.S.P., cans	lb.	2.25	4.75
Spike, Spanish, cans	lb.	1.05	1.10
Lemon, Ital., U.S.P.	lb.	3.50	—
Cal.	lb.	3.00	—
Lemongrass, native, cans	lb.	.55	—
Linaloe, Mex., cases	lb.	1.50	Nom.
Nutmeg, U.S.P., tins	lb.	1.50	Nom.
Orange, Sweet, W. Ind., tins	lb.	2.50	Nom.
Italian cop	lb.	3.00	Nom.
Distilled	lb.	.90	—
California	lb.	1.50	—
Origanum, cans, teach	lb.	.90	1.25
Patchouli	lb.	3.75	Nom.
Pennyroyal, dom.	lb.	2.15	Nom.
Imported	lb.	2.20	Nom.
Peppermint, nat,, cans	lb.	2.20	2.45
Redis., U.S.P., cans	lb.	2.45	2.70
Petitgrain, S. A., tins	lb.	.95	Nom.
Pine Needle, Siberian	lb.	1.15	Nom.
Rosemary, Spanish, tins	lb.	.69	Nom.
drums	lb.	.64	Nom.
Sandalwood, E. Ind., U.S.P.	lb.	5.50	Nom.
Sassafras, U.S.P.	lb.	1.05	—
Artificial, drums	lb.	.52	Nom.
Spearmint, U.S.P.	lb.	1.80	1.85
Thyme, red, U.S.P.	lb.	1.10	—
White, U.S.P.	lb.	1.15	—
Vetivert, Bourbon	lb.	6.00	18.00
Ylang Ylang, Bourbon	lb.	2.50	3.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.30	$1.45
Amyl Cinnamic Aldehyde	lb.	2.00	2.25
Anethol	lb.	1.10	1.15
Benzaldehyde, tech.	lb.	.55	.60
U.S.P.	lb.	.85	.95
Benzyl, Acetate	lb.	.44	.49
Alcohol	lb.	.63	.68
Citral	lb.	1.40	3.10
Citronellal	lb.	.75	.80
Citronellol	lb.	1.60	1.85
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	2.75	4.65
Cymene, drums	gal.	.90	1.25
Diphenyl oxide	lb.	.50	.55
Eucalyptol, U.S.P.	lb.	.65	Nom.
Eugenol, U.S.P.	lb.	1.80	1.85
Geraniol, Domestic	lb.	.67	3.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	1.20	2.50
Heliotropin	lb.	2.75	Nom.
Hydroxycitronellal	lb.	2.00	2.50
Indol, C. P.	oz.	2.00	2.13
Ionone	lb.	2.50	4.15
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	2.10	6.30
Linalyl Acetate	lb.	2.50	2.75
Menthol	lb.	3.00	3.35
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.10	2.30
Paracresol	lb.	4.50	6.00
Salicylate, U.S.P.	lb.	.35	.37
Musk Ambrette	lb.	3.25	3.40
Ketone	lb.	3.40	3.80
Xylene	lb.	.90	1.15
Phenylactaldehyde	lb.	2.10	3.50
Phenylacetic Acid	lb.	1.75	3.00
Phenylethyl Alcohol	lb.	2.50	3.35
Rhodinol	lb.	5.55	10.80
Safrol	lb.	.50	.53
Terpineol, C. P., 1000 lb. drs.	lb.	.25	—
Cans	lb.	.28	—
Terpinyl Acetate, 25 lb. cans	lb.	.77	.80
Thymol, U.S.P.	lb.	1.40	1.45
Vanillin, U.S.P.	lb.	2.50	2.65
Yara Yara	lb.	1.25	1.56

Insecticide Materials

Insect Powder, bbls.	lb.	.33	.35
Pyrethrum Extract			
5 to 1	gal	1.80	1.85
20 to 1	gal.	6.75	7.00
30 to 1	gal.	10.15	10.25
Derris, powder—4%	lb.	.19	.25
Derris, powder—5%	lb.	.21	.27
Cube, powder—4%	lb.	.19	.25
Cube, powder—5%	lb.	.21	.27

Gums

Arabic, Amb. Sts.	lb.	.19	Nom.
White, powdered	lb.	.22	Nom.
Karaya, powdered No. 1	lb.	.14	.23
Tragacanth, Aleppo, No. 1	lb.	2.50	Nom.
Flake	lb.	No Prices	

Waxes

Bees, white	lb.	.37	.39
African, bgs.	lb.	.24	.25
Refined, yel.	lb.	.30	—
Candelilla, bgs.	lb.	.16½	.17
Carnauba, No. 1	lb.	No Prices	
No. 2, N. C.	lb.	.41	—
No. 3, Chalky	lb.	.36	.36½
Ceresin, yellow	lb.	.10½	.12½
Paraffin ref. 125-130	lb.	.040	.044

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Production Section

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries.*

Cake Hand Soaps

SOAPS best suited for frequent hand washing and general home use are the simple solid curd or toilet soaps. Such soaps should not be chemically sharp, either through additions or through the use of unsuitable fat charges such as too much coconut oil. Even when there is no excess alkali present, soaps made largely from coconut oil will have a coarsening and roughening action on the skin, especially when the hands are washed with it at frequent intervals. Soaps made from palm kernel oil behave in much the same way, a fact which has not always been recognized.

A mild toilet soap containing only a few per cent of coconut or palm kernel oil can be used repeatedly during the day without doing the hands any harm. For the purpose described, perfuming needs to be carefully considered, as many housewives object to soap with a noticeable perfume for use in the kitchen. It is practically impossible to produce a satisfactory soap containing no perfume, since even when the best grades of fats are used, the soap will have a tallowy or fatty odor which will remain on the hands to some extent. Perfume must therefore be used, but it should be in minimal amounts. This will serve to cover up the soap odor and need not be of itself sweet or heavy in type. A perfume of this type is the following:

	Grams
Citronella oil	200
Rosemary oil	200
Terpinyl acetate	350
Kummel oil	50
Benzoin resinoid for soap.	200

About 0.2 per cent of this odor should be used. The natural soap odor is covered up and the only noticeable odor is fresh and faintly spicy. The odor can be improved by replacing part of the first three ingredients with bergamot oil and cedarwood oil. A lemon odor is also suitable for general use as a hand soap in the kitchen.

The shape and stamping of this soap is also important. Sharp corners and deep stamping hinder smooth handling of the soap cake and reduce the effective area of the soap. It is then necessary to rub the cake longer with the hands in order to get the desired amount of lather. Filled soaps are not suitable for the purpose, especially if filled with much sodium silicate because of the high alkalinity produced by this soap builder.

There are however, additions that can be made to the soap which will not have a harmful effect on the skin and which will increase cleansing action. Finely ground bentonite is such a material, giving the soap special adsorptive properties without making the soap coarse or abrasive in character. When used, bentonite should not be milled into the soap in the form of a dry powder, as this decreases its suspending and adsorptive effect. The bentonite is preferably stirred slowly into hot water in the proportion of one part by weight of bentonite to three parts of water. This gives a rather thick paste of which 10 per cent is milled into the soap. A soap with a fatty-acid content of 72 per cent is obtained. The bentonite does not have an abrasive action, but serves rather to take up solid particles of dirt from the skin by adsorption. It is more effective than straight soap in cleaning the skin. A soap cake containing bentonite has a smooth feel and a pale cream color. The color can be changed to white by the inclusion of 0.5 per cent of titanium dioxide. If desired, the fatty acid content of such soap can be reduced by several per cent.

Another addition which can be made to this kind of soap is the sodium salt of lignin sulfonic acid. (Zewa powder, SAP.) Inclusion of 5-20 per cent of this increases the emulsifying and lathering power of the soap and permits the inclusion of somewhat more coconut oil in the fat charge, and gives a soft and creamy lather.

Toilet soap for general use may also contain with advantage 3 per cent of lanette wax and 3 per cent of sodium metaphosphate, the former being milled directly into the soap, the latter added in concentrated solution. Methyl cellulose is a good addition also as an emulsifying agent.

Any solvents which may be added should be those which do not volatilize readily such as benzyl benzoate, methylhexalin, etc. These aid in the removal of oily, resinous and paint types of soil. Because they modify the odor, the consistency of the soap, and its lathering power, solvents should be present only to the extent of 2-5 per cent. Josef Augustin. *Deutsche Parfümerie-Ztg.* **25,** 268-70 (1939).

Saddle Soap

A saddle soap is made from the following:

	Parts
Palm oil	14
Resin	1
Caustic soda, 38° Be	7

The soap is made by the semiboiled process. After making adjustments to correct excess acidity or alkalinity, the following are stirred in: 35-40 parts of water, 5 parts of calcium-free, water-white glycerine, sp. gr. 1.23-1.24. Finally 0.2 part of talcum is added and the mass run into forms to set. If desired 1-2 per cent of beeswax may be incorporated during manufacture. *Seifensieder-Ztg.* **66,** 632 (1939).

Soap Powder

A soap powder with a mild bleaching action may be made from 15 parts by weight of coconut oil or palm-kernel oil fatty acids, 18 parts of tallow fatty acids, about 17 parts of caustic soda, 38° Be., 5 parts of 36-38° sodium silicate, 5 parts of trisodium phosphate, 23 of calcined soda ash, and 17 of water. After the powder is prepared and dried it is mixed in the proportion of 9 parts of soap powder with 1 part of sodium perborate. *Seifensieder-Ztg.* **66,** 631 (1939).

Triethanolamine Soaps

TRIETHANOLAMINE soaps made with a number of pure fatty acids were used in standardized washing tests to determine their comparative detergent efficiency. The extent of reflected light from samples of soiled cloth was measured in a photoelectric photometer. Clean cloth of the same kind was taken as a 0 per cent soil standard. A photographic plate cover was used as a standard for 100 per cent soil. Differences between these two readings in microamperes were divided by 100 to give data in percentages.

Samples of cloth were washed in four wide-mouth Mason jars held in an aluminum frame and agitated in a miniature washing machine. The cloth was soiled with a mixture of 2 grams of lamp black, 5 grams of heavy liquid petrolatum and 3 grams of tallow in 2000 c.c. of carbon tetrachloride. The soiled cloth was placed in a 1 per cent solution of a triethanolamine soap and washed for 10 minutes at 45° C. Four samples were used with each pure soap. The detergent efficiency of these pure triethanolamine soaps decreased from the laurate showing maximum detergency, through the oleate, myristate, and palmitate; the stearate was much lower in detergent value than the rest of these, being about two-thirds as efficient as the laurate. None of the pure triethanolamine soaps possessed as great detergent action as ordinary soap.

Triethanolamine soaps were also prepared from commercial mixed fatty acids used in the normal manufacture of soap. Those taken were tallow, coconut oil, and red oil, the latter being equivalent to the mixed fatty acids of olive oil. Their detergent efficiency in decreasing order was tallow, coconut oil, and red oil soap. Geo. W. Fiero. *J. Am. Pharm. Assoc.* **28,** 284-5 (1939).

Anti-perspiration Soap

Toilet soap to prevent perspiration is characterized by the addition of chromium oxide and hexamethylenetetramine. A proportion of aluminum acetate may also be successfully added. The soap base may be provided with the aromatic or similar substances usually employed, but the presence of large amounts of readily oxidizable substances should be avoided.

As an example 3.5-5 parts by weight of chromium oxide, 1-2 parts of hexamethylenetetramine and 1 part of aluminum acetate are stirred into 100 parts by weight of molten soap. The soap is then allowed to harden into shapes of any desired configuration. Ervin Pick. British Patent No. 506,903.

Soapless Detergent

A detergent in bar form substantially free from soap contains predominantly a mixture of glycerine or ethylene glycol partially esterified with a saturated fatty acid containing 12 or more carbon atoms, and a water-soluble salt of a sulfuric reaction product of a high molecular-weight organic compound. The salt is characterized by its high solubility in water, its high resistance toward the constituents of hard water, and its detergent and lathering properties. The partially esterified glycerine or ethylene glycol is present in sufficient amount to produce a bar having substantially the same solubility as a bar of ordinary milled toilet soap under the same conditions of use. Procter & Gamble Co. of Canada, Ltd. Canadian Patent No. 383,442.

I.N.S. Factor

Too much importance has been attached to the titre of the fatty acids as indicating the hardness of soaps produced from them. Also in the case of mixtures of fats iodine value alone is not very reliable, as it takes no account of the nature of the solid acids, which is very important, since the solid acids of palm kernel oil and coconut oil give very hard but soluble soaps as compared with the solid acids of tallow, which give hard but difficultly soluble soap. The saponification value of palm kernel oil and coconut oil varies from approximately 240 to 260, as compared with most other fats which have a saponi-

fication value of 190 to 200. A high iodine value gives a soft soap and a high saponification value a very hard soap. Webb calls the difference between these two figures the I.N.S. factor. His theory is that the hardness of a soap is proportional to this factor, and that soaps having the same I.N.S. factor will have the same consistency, irrespective of the blend of fats from which they have been made. Webb states that household soaps for general purposes should possess an I.N.S. factor not lower than 130 and preferably not higher than 160.

Analyses of a number of commercial soaps showed that all the soaps came practically within the limits given as desirable, but where the lower limit is reached the soap tends to become distinctly softer than desirable. Soapmakers who have not hitherto paid much attention to this factor will probably find it worth while to do so, varying raw materials to meet market conditions and yet continuing to produce a soap of satisfactory and uniform consistency. *Soap, Perfumery and Cosmetics* **12,** 689-92 (1939).

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Laundering Agent

A detergent suitable for laundering processes is prepared by removing organic unsulfated material and other organic impurities from a product containing water-soluble salts of alkyl sulfuric acids obtained from secondary alcohols having 10-25 carbon atoms in the molecule. Procter & Gamble Co. of Canada, Ltd. Canadian Patent No. 383,443.

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Viscosity of Fatty Acids

The viscosity of linolenic, linoleic, oleic or stearic acids or mixtures of linolenic and linoleic or oleic and stearic acids decreases linearly with increase in Hübl iodine value, and also decreases with an increase in temperature. Equations are developed for calculating the viscosities of the above fatty acids from the temperatures and iodine values. G. B. Ravich. Compt rend. acad. sci. U. R. S. S. 22, 34-6 (1939); through Chem. Abs.

Products and Processes

Non-caking Detergent

Caking is minimized in a powdered mixture of silica and trisodium phosphate by dispersing throughout the mixture a small quantity of aluminum phosphate which is active in preventing the formation of an adhesive substance produced by the interaction of silica with the alkaline sodium compound derived from the trisodium phosphate. Blockson Chemical Co. Canadian Patent No. 383,382.

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Washing Agents

Aromatic amines containing sulfonic groups and substituted in the nucleus or at the nitrogen atom by aliphatic or aliphatic-aromatic residues are treated with high molecular-weight saturated aliphatic carboxylic acids or their derivatives. Thus, stearic acid is boiled with monoethylnaphthylamine and the product sulfonated by treatment with oleum. Also ethylanilinesulfonic acid is heated with palm nut fatty acid chloride. I. G. Farbenind. A.-G. German Patent No. 673,730.

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Wetting Agent

A wetting agent consists of the high molecular-weight sulfonation products obtained by treating neutral fats, fatty acids, resins, naphthenic acid, or mixtures of these with hydrocarbons, alcohol, ketones, phenols or carboxylic acids, with strong sulfonating and condensing agents such as sulfuric halohydrins. Thus, the sodium salt of the sulfonic acid obtained by treating peanut oil fatty acids with chlorosulfonic acid in benzene is mixed with pyroracemic acid and ethyl alcohol and methyl alcohol to give a wetting agent. Oranienburger chemische Fabrik A.G. German Patent No. 670,962.

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Shaving Preparations

Shaving preparations consist of 1 or more alkaline earths such as magnesium carbonate, and minor proportions of zinc oxide and soap. Water-soluble fillers and a binder such as gum tragacanth may be added. Arnost Toch. British Patent No. 499,761.

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Sulfonated Alcohol Product

Products useful as wetting, cleansing and emulsifying agents are obtained by sulfonating a mixture containing an aliphatic alcohol of at least 10 carbon atoms, and a lactone, alcohol or ketone containing less than 10 carbon atoms. Sulfonation is with chlorosulfonic acid at a temperature up to 40° C. Oranienburger Chemische Fabrik A.-G. German Patent No. 672,350.

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Castor Oil in Soap

Castor oil soapstock can be used directly for liquid or for disinfectant soaps. Castor oil is also used in hard transparent potassium soaps. A small addition of ricinoleic acid increases the lathering power of soap. Castor oil is also used to increase the plasticity of toilet soaps. The characteristics and use of hardened castor oil do not seem to be very well known as yet. Castor oil can be completely saturated by hydrogenation and hardened to a melting point of 80-82° C. This product looks like a glossy wax and has nearly the same properties as carnauba wax, for which it is a substitute. It contains about 80 per cent of hydroxystearic acid. Ilona Taussky. *Manufacturing Perfumer* **4,** 245 (1939).

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Acid Hair Washes

Hair washes and detergents consist of condensation products of high molecular-weight protein degradation products with higher fatty acids, mixed with calcined salts such as anhydrous borax or anhydrous sodium pyrophosphate, and with sufficient acid substances to produce a neutral or slightly acid solution of pH 5-7. The addition of fillers enables the quantity of salt to be diminished, which has a favorable ef-

fect on lathering properties. Inert fillers include starch, wood flour, kaolin, saponin, etc. Chemische Fabrik Grünau A.-G. British Patent No. 500,631.

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Zinc White for Fat Splitting

Zinc white mixed with 20-40 per cent of zinc dust makes an excellent fat-splitting agent and catalyst in the oil and fat industry. One reason for this is that zinc white can be obtained in a high degree of chemical purity, giving correspondingly pure and light-colored fatty acids. Zinc white has a very fine particle size which increases its surface activity. The zinc soaps formed are easily decomposed. Although zinc white is higher in price than oxides which might be used, smaller amounts are necessary. A. Foulon. *Seifensieder-Ztg.* **66,** 568-9 (1939).

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Cheap Metal Polish

An inexpensive liquid metal polish is made as follows: 2 parts of fatty acids from tallow or from hardened fat, 8 parts of talloil, 5 of petroleum and 5 of denatured alcohol are treated with 5 parts of ammonia, sp. gr. 0.91, for saponification of the fatty acids. To this are added 45 parts of water and then a mixture of 5 parts of bentonite and 25 parts of amorphous silica. This product is rather viscous and settles out only slowly. *Seifensieder-Ztg.* **66,** 592 (1939).

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Liquid from Paste Soap

A liquid soap can be made by dissolving 30 kg. of transparent paste soap in 69 kg. of distilled water and adding 1-2 kg. of Turkey red oil, either by itself or combined with triethanolamine oleate dissolved in benzine, benzol or toluol. *Seifensieder-Ztg.* **66,** 551, 572 (1939).

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Bleaching Agent

The residues left after treating alumina minerals containing silica with sulfur dioxide are used for bleaching animal and vegetable fats and mineral oils. Chemische Fabrik Bauckau. German Patent No. 670,-936.

Wetting Agents in Dyeing

A study of the way in which surface-active agents such as sulfated fatty alcohols are of value in dyeing leads to the following conclusions: They do not act to disperse dyes either in the dye-bath or on the textile fibers. The greater part of all dyeing is done with dyes which give negatively charged color ions in solution. The anionic surface-active agents appear to have at most a mild agglomerating effect on the dyes. The cationic surface-active quaternary ammonium compounds have a strong precipitating action on negatively charged dye ions and are used to fix water-soluble substantive dyes on cellulose fibers to bleeding in water.

The swelling of textile fibers in contact with water is essential in opening the intermicellar spaces for penetration of dyes. It is probable that the chief function of negatively charged surface-active ions in dyeing cellulose materials is in promoting this swelling action by assisting in the uniform and rapid wetting of the fiber surfaces. Positively charged agents retard the rate of dyeing and act as leveling agents. Edward Smith. *Am. Dyestuff Reporter* **28,** P146-52 (1939).

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Lithium in Soap

A soap for shaving and toilet purposes consists of ordinary soap in which lithium oxide, lithium carbonate or lithium citrate is incorporated. The corresponding compounds of thorium, magnesium or strontium may also be added. Archibald MacBroom, Ronald Smith and Malcolm H. Smith. British Patent No. 498,850.

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Surface Tension Errors

During experiments on the surface tension of dilute soap solutions at equilibrium conditions as determined by the platinum ring method, it was observed that discrepancies between check determinations became more serious the greater the dilution of the soap solution. The tendency of atmospheric carbon dioxide to liberate free fatty acids and thus lower the surface tension was eliminated by working in a carbon dioxide-free atmosphere. However, the discrepancies still persisted, probably because of slow adsorption at the container walls or other solid surface in contact with the solution. Such adsorption tends to remove free fatty acids from solution, which leads to more or less complete hydrolysis of the soap. Lottermoser. *Fette und Seifen* **45,** 595-6.

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Evaluating Wetting Agents

In the Draves method for evaluating wetting agents, which consists of finding the concentration of wetting agent required to cause the sinking of a 5-gram skein of yarn in a standard period of time, the yarn used was found to have a considerable effect on the result. The kind of yarn used, hard or soft, also exerts more effect on one wetting agent than on another. The conclusion from experimental investigations was that each problem in wetting-out tends to be unique and one standard test is not applicable to all wetting problems. The type of cloth or fiber, the pH of the solution, concentration of wetting agent, temperature, and methods of manipulation should all correspond as closely as possible with actual practice. Joseph W. Creely and George LeCompte. *Am. Dyestuff Reporter* **28,** P419-20 (1939).

The Official or Draves method for evaluating wetting agents is more accurate in arriving at 25-second sinking concentrations than the Canvas Disc Method. The best accuracy in the determination of sinking times occurs near 25 seconds. Because different products do not behave the same upon dilution with respect to wetting, the concentration must be stated in speaking of the equivalence of two products. Carl Z. Draves. *Am. Dyestuff Reporter* **28,** P421-4 (1939).

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Textile Soap

Sulfinic acids containing at least one higher aliphatic or cycloaliphatic residue in the molecule are added to soaps for scouring textiles. In an example the sodium salt of dodecanesulfinic acid is added. Henkel & Cie. G.m.b.H. German Patent No. 671,827.

Shaving Creams

SHAVING cream should lather freely, giving very small bubbles, and is expected to meet a number of other requirements not easily attained. The following formulaes are suggestive:

		Per Cent
1.	Stearic acid	25
	Coconut oil	7
	Olive oil	5
	Glycerine	7
	Caustic potash	8.75
	Caustic soda	0.25
	Water	45
	Perfume	2
2.	Stearic acid	28
	Coconut oil	3
	Lard	3
	Glycerine	5
	Mineral oil	2
	Lanolin	2
	Triethanolamine stearate	2.75
	Caustic potash	9
	Caustic soda	0.25
	Water	43
	Perfume	2

Coconut oil increases the lathering power of a stearate soap. Glycerine prevents drying out. Mineral oil promotes lubrication but lowers wetting power. Lanolin is a good superfatting agent, increasing the plasticity of the product. Triethanolamine stearate tends to reduce bubble size.

In using the above formulas, melt the free fats and transfer to the mixer together with any mineral oil to be used. A hot solution of the alkalies is then made and a part slowly added to the hot fats together with the glycerine. The temperature need not be much above the melting point of the solid fats. Slow but continuous stirring is required until saponification occurs. At this point the remainder of the alkali may be added at the same temperature and stirred in. Raise the temperature to about 70° C., pour in the stearic acid slowly after it has been melted and raised to the same temperature. Adjust to neutrality after saponification is complete.

A cologne perfume contains the following:

	Parts
Lemon oil	300
French lavender oil	100
Spike lavender oil	75
Rosemary oil	65
Bergamot oil	200
Petitgrain oil	250
Musk xylol	10

Perfume substances which are to be avoided because they may be irritating to the skin include clove oil, heliotropin, hydroxycitronellal and the eugenols. The following may cause discoloration: Indole, vanillin, isoeugenol, methyl anthranilate, and musk ambrette. H. Leslie Holborow. *Manufacturing Perfumer* **4**, 249-52 (1939).

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Zinc White In Soaps

The use of zinc white in soap as a perfume fixative and as a whitening agent depends principally on the physical adsorptive power of the zinc white. The fixative power of zinc white for odors is based upon its surface activity induced by the capillary effect of its surface. The active surface of zinc white, inherent in the nature of the pigment, but also conditioned by the modern technique of manufacture, enables it to draw foreign substances into its capillaries, i.e., to bind them by adsorption. Also, because of the adsorptive power of zinc white, the whitening effect must not be regarded simply from the standpoint of the coloring power of the pigment. In a similar manner to the oil-bleaching process where the colored substances are deposited upon the surface of the bleaching earth, so the materials subsequently formed in soaps, which impart an undesirable discoloration, are retained by the zinc white and in the case of the acid products, converted into colorless or faintly colored compounds. Dr. A. Foulon. *Chemical Products*, Aug. (1939).

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Exhaust Steam Hook-up

Rearrangement of piping to use exhaust steam for heating and processing in soap and other plants is often a problem. Complicated and ineffective hook-ups are common. The accompanying diagram shows what is considered the simplest and best arrangement in the opinion of a well-known engineer, which makes it possible to utilize 100 per cent of the exhaust provided such usage is at all possible. Should there be a surplus of exhaust steam at any time it is automatically switched by the regulator into the atmosphere. If on the other hand the amount of exhaust steam is insufficient for requirements, the sensitive control device automatically admits live steam make-up into the exhaust. Then, as soon as the required amount of extra heat is supplied the live steam is again automatically cut off.

In other words this arrangement guards the exhaust and saves live steam with the utmost precision, —much more efficiently and economically than would be possible with the best of human supervision and hand control. An important advantage is that this arrangement usually permits the utilization of much of the old piping and valves. That is, it is not necessary to install entirely new equipment throughout in attaining the highest degree of modernization.

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New Soap Manufacture

A new method for the manufacture of soap is intended: 1. To cheapen the cost of manufacture of soap and glycerine, improve the quality of the soap by making it whiter and purer, make it possible to obtain soap directly in a finely divided state, the soap being substantially anhydrous.

2. To recover substantially all of the glycerine.

3. To provide a method for introducing a controlled amount of moisture.

4. To provide apparatus in which the anhydrous soap powder may be converted into solid soap.

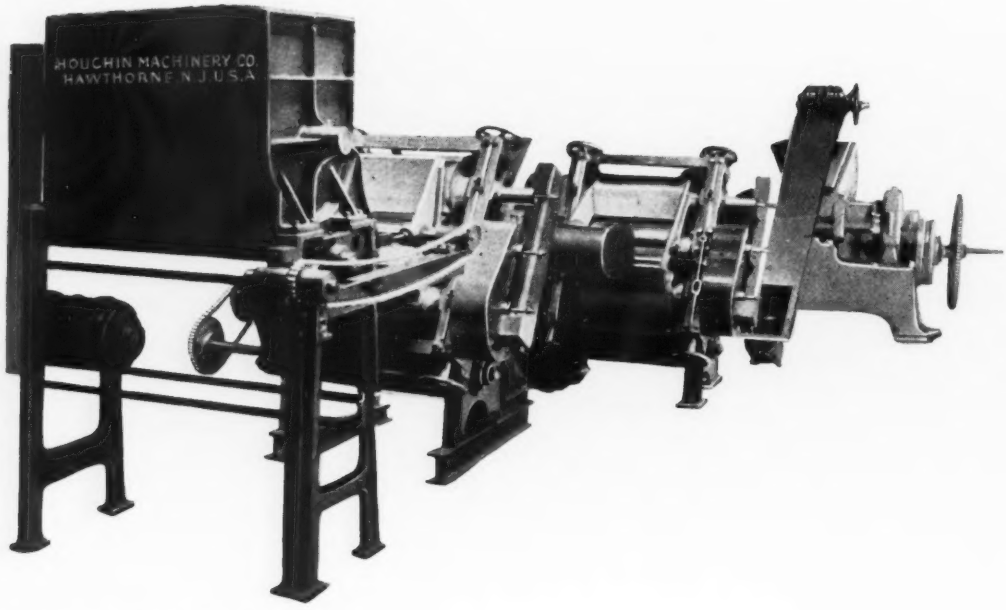
5. To provide a continuous rather than a batch process.

6. To provide soap in a form readily reduced to cakes or bars.

7. To provide apparatus so that fillers may be added so that when the soap is discharged it is in the finished condition.

In the process designed to achieve these results, a current of superheated steam of a temperature

Complete Unit for Milling and Plodding
TOILET SOAP



Capacity 1,000 lbs. per hour (once through).
Unit consists of:

One (1) Ideal Amalgamator, with motor.
One (1) Three-Roll Chilled Iron Water Cooled Mill.
One (1) 10″-Preliminary Plodder fitted with Screen.
One (1) Three-Roll Chilled Iron Water Cooled Mill.
One (1) 10″-Preliminary Plodder fitted with Screen.
One (1) Conveying Screw with motor.
One (1) 10″-Finishing Plodder fitted with Electric Heater and Forming Plate.
One (1) Automatic Bar and Cake Cutter.

Unit operated by (2) 15-H.P.—(1) 10-H.P.—(1) 5-H.P.—(1) ½-H.P. Motors. Roller Chain Drives. Complete Weight 24,000-lbs. Floor Space 15-ft. x 21-ft.

We have recently installed a unit for making 5,000-lbs. of Toilet Soap per hour, taking two bars at a time from the Plodder and Automatic Bar and Cake Cutter.

These units are only recommended for long runs of Soap. We will be pleased to give further particulars upon request.

HOUCHIN MACHINERY CO., Inc.

HAWTHORNE, NEW JERSEY, U. S. A.

above the melting point of anhydrous soap is passed through a retort; the fat or oil to be saponified and the alkali are sprayed into this current of superheated steam. Volatile constituents of the reaction are conducted off and the saponified material removed mechanically from the retort. The interior of the latter is constantly maintained at sub-atmospheric pressure. The apparatus, in addition to a retort having two chambers, consists of a rotary hopper forming a fluid-tight connection between the chambers, and means for introducing and discharging materials as described. Lorenz Patents Corp. British Patent No. 504,118 and patent application 28,134.

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Mechanics of Detergency

Modern detergents are composed of paraffin chains of over 12 carbon atoms which ionize in water, displaying dual affinity toward water and oil. The hydrophilic end consisting of carboxyl or sulfonated groups, extends into the water phase of the oil-water interface while the paraffin end comes into contact with the oil phase of the soil. Surface tension is thereby lowered and slight agitation will immediately emulsify the oil. Electrolytes, alkalies or impurities also affect surface tension. Alkalies usually lower the surface tension and increase detergency. This alone cannot remove all oil. Emulsification is necessary to remove oil left in the interstices of fibers. The presence of an oil-soluble substance in the detergent will facilitate removal of oil. Control of pH is very important in the washing of amphoteric filters such as wool or silk. E. Schmidt. *Teintex* **3,** 258-60; through Chem. Abs.

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Dispersing Agent

High molecular-weight ternary sulfonium salts with unsubstituted hydrocarbon radicals of which at least one consists of more than nine carbon atoms are used as washing and dispersing agents. An example is dimethyldodecylsulfonium bromide. Böhme Fettchemie G.m.b. H. German Patent No. 671,882.

Soap Hardness

Contrary to some generally held ideas, solid fats such as tallow, palm oil, etc., do not yield particularly hard soaps, or are the soaps given by certain liquid oils such as olive oil, olein, etc. particularly soft. Hardness is primarily conferred by coconut and palm kernel oils and softness by liquid oils containing high proportions of acids more unsaturated than oleic acid such as those in cottonseed and soybean oils.

There is a vast difference in the solubility of soaps made from solid fats, fats of the coconut oil class, and those made from liquid oils,—those of the coconut oil class being most soluble both in hot and cold water. The solubility of soaps made from tallow and palm oil is exceedingly low, even in warm water, and the critical point appears to be between 100° and 110° F., a range over which the solubility is trebled.

In the case of 63 per cent soaps, the factors governing durability or relative rate of wastage are both solubility and hardness. In cold water, hardness tends to be a greater factor than solubility, but in hot water any differences in hardness tend to be outweighed by solubility considerations. The I.N.S. and Solubility Ratio factors of Webb were applied and found to be of no value in forecasting either hardness or solubility, at least to the extent suggested by Webb.

The durability of toilet soaps compared with 63 per cent soaps has been found to be surprisingly low, particularly in cold water, and it is suggested that this is caused by rapid disintegration due to the physical condition within such a soap. In hot water the wastage still compares unfavorably when the greater actual soap content of toilet soaps is taken into consideration. Archibald Rayner. *Soap, Perfumery and Cosmetics* **12,** 324-6, 345 (1939).

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Saponification Values

Determinations of the saponification values of stearic, palmitic and oleic acids made by boiling with 0.5 Normal alcoholic potassium hydroxide solution and titrating the excess of potassium hydroxide with 0.5 Normal hydrochloric acid to a phenolphthalein endpoint, do not give consistent results. Maximum differences were of the order of 1-3 per cent. Accuracy was not increased by adding ethyl alcohol, propyl alcohol, butyl alcohol, isoamyl alcohol, glycol or glycerine to the solutions. The results of titration with potassium hydroxide in ethyl alcohol are not affected by the presence of pure potassium soaps. K. Ihnatowicz. *Przemysl Chem.* **22,** 179-86; through Chem. Abs.

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Heat and Fat Stability

A number of experiments were carried out to determine the effect of heat on the stability of fat in storage or its tendency to deteriorate. The results show that the speed of autooxidation of fats depends on the concentration of peroxides present and on the presence of natural antioxidants. Heating fats to temperatures of 150-200° C. increases the rate of formation of peroxides and accelerates autooxidation. Heating in an atmosphere of nitrogen decreases the speed of autooxidation. Heating fats above 200° C. causes destruction of peroxides and a decrease in the rate of autooxidation. However this rate remains greater than for unheated fats, probably due to the simultaneous destruction of some of the antioxidants present. J. Köchling and K. Täufel. *Fette und Seifen* **46,** 206-9 (1939).

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Natural Antioxidants

Vegetable, animal and fish oils and fats or other materials readily susceptible to atmospheric oxidation are stabilized against such oxidation by the addition of a proportion of an antioxidant concentrate obtained by high-vacuum, preferably short-path, distillation of a triglyceride oil or fat containing natural antioxidants. Eric W. Fawcett and Imperial Chemical Industries, Ltd. British Patent No. 501,194.

New Equipment

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

619—New Deodorizer

A new thief-proof electrical washroom deodorizer has been placed on the market by the Automatic Electrical Devices Co., Cincinnati. This new Homozone model, according to the manufacturers, produces ozone through the action of millions of tiny electrical sparks upon the ordinary room air. Ozone, a powerful oxidizing agent, destroys odors of organic origin through oxidation into harmless, odorless compounds, says Clarence E. Ogden, president of the company. No chemicals or refills are required. The unit plugs into any lighting socket and is secured to the wall by a padlock. Its adjustment key is removable, so as to prevent tampering.

620—Meter for Liquids

S. F. Bowser & Co., liquid control systems, Fort Wayne, Ind., have recently developed a new meter, "Xacto," which it is said actually measures the liquids introduced into blending, mixing and compounding operations. It is also said that the ratio of the various ingredients is positively and automatically controlled by the meters themselves.

621—New Crusher Feeder

Prater Pulverizer Co., Chicago, is in production on a new ball bearing crusher-feeder which is said to have improved crushing action and positive uniform feeding control. Among other features claimed are dust proof outboard bearings, simple direct drives without reduction, steel cut-tooth helical gears, and double duty gates. Bulletins describing and illustrating the machine are available.

622—Gloss Wax Booklet

Franklin Research Co., Philadelphia, has issued a new illustrated booklet on its product "Rubber Gloss Wax." The literature tells the necessary qualities a practical, economical and safe floor wax must have, and illustrates simple equipment for testing water resistance and co-efficient of slip of a wax. Also contained in the booklet are descriptive bar charts and an analysis of the cost of maintaining a floor with a water emulsion wax.

623—First-Aid Catalog

Davis Emergency Equipment Co., New York, has published a new catalog which is a handbook of industrial first-aid supplies. Among the supplies listed are first-aid kits for general and special purposes, dressings, treatments and supplies packed in unit cartons, splints, stretchers, etc.

624—Package Machinery Folder

Package Machinery Co., Springfield, Mass., has issued a folder which contains illustrations and descriptions of two of its latest packaging machines "Model FA-Q" and "Model CM-2." Features of the machines are said to be high speed and versatility as to the size of the package to be wrapped.

625—Kiefer Machine Bulletin

Karl Kiefer Machine Co., Cincinnati, has just issued a new bulletin which contains illustrations and descriptions of its entire line of filling machines, rinsing machines, bottle cleaning machines, etc.

626—Nickel Equipment Bulletin

International Nickel Co., New York, has issued a new bulletin (T-6) on the resistance of nickel and its alloys to corrosion by caustic alkalies. Tables list the results of laboratory corrosion tests with caustic soda and various metals. Results are also given for actual corrosion tests in a soap lye storage tank. Copies are available.

627—Handling Devices

Barrett-Cravens Co., Chicago, has recently issued a new 172 page catalog which illustrates and describes 176 different materials handling equipment items manufactured by the company. Included in the line of equipment are portable elevators, lift trucks, container storage systems and electric hoists. Copies of the catalog (No. 639) are available.

628—U. S. Stoneware Bulletin

United States Stoneware Co., New York, has just issued a new bulletin, No. 404, which fully covers the subject of acid-proof tanks. Various types of tanks are illustrated and dimensions for all sizes are listed. The booklet also contains information on jars, pots and trays.

Synthetic Salt Cake Plant

Mathieson Alkali Works will start production in its new synthetic salt cake plant at Lake Charles, La., about November 1, 1939. This is the first plant of its kind in the United States and it is expected to make this country independent of foreign sources of salt cake. Under the process, sodium carbonate is combined with sulfur under high temperature and sodium sulfate is produced.

THIS year, the 17th Exposition of Chemical Industries offers you a dramatic pageant of progress made possible by the exhibits of more than three hundred of the most progressive manufacturers in the chemical process and related industries.

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New Patents

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,155,946, Insecticidal Oil Spray, Patented April 25, 1939, by Daniel G. Loetscher, Hammond, Ind., assignor to Standard Oil Company, Chicago, Ill. The method of increasing the solubility of nicotine naphthenate in oil sprays which comprises employing a slight excess of naphthenic acid over the amount theoretically required for the chemical combination of naphthenic acid and nicotine.

No. 2,166,661, Insecticides, Patented July 18, 1939 by Carl P. Hopkins, Grand Junction, Colo., assignor to The Latimer-Goodwin Chemical Company, Grand Junction, Colo. An insecticide, comprising a reaction product of olefinic and pyridinic compounds and sulphur.

No. 2,167,180, Brushless Shaving Cream, Patented July 25, 1939 by Wolf Kritchevsky, Chicago, Ill., assignor to Rit Products Corporation, Chicago, Ill. A brushless shaving cream comprising a plastic emulsion of oleaginous and aqueous materials and containing a minor proportion of an aromatic sulphonate.

No. 2,168,064, Insecticide, Patented August 1, 1939, by Dalton B. Faloon, Beacon, N. Y. assignor to Hammond Paint & Chemical Co., Beacon, N. Y. An insecticidal composition comprising a powdered insecticide of plant origin, which normally loses its toxic principles when exposed to the sun's rays, coated with a white pigment in sufficient quantity to inhibit the loss of the toxic principles of said insecticide when exposed to light.

No. 2,171,197, Purification of Laundry Waste, Patented Aug. 29, 1939 by Oliver M. Urbain and William R. Stemen, Columbus, Ohio, assignors to Charles H. Lewis, Harpster, Ohio. A process for purifying laundry waste comprising initially removing suspended solids from the waste, effecting hydrolysis of the soap solution, passing the solution through a filter charged with zinc oxide to remove through chemical reaction the fatty acids freed by the hydrolysis, and thence passing the fatty acid free solution through a chlorinated coal filter to effect removal of remaining organic matter therefrom.

No. 2,171,198, Recovering Fatty Acids, Patented Aug. 29, 1939 by Oliver M. Urbain and William H. Stemen, Columbus, Ohio, assignors to Charles H. Lewis, Harpster, Ohio. In a process for the recovery of fatty acids from solutions containing the same, the step comprising effecting chemical removal of the fatty acids by passing the solution through a filter charged with zinc oxide and thereafter effecting recovery of said fatty acids by treatment of the zinc oxide filter.

No. 2,171,200, Recovering Fatty Acids, Patented Aug. 29, 1939, by Oliver M. Urbain and William R. Stemen, Columbus, Ohio, assignors to Charles H. Lewis Harpster, Ohio. In a process for recovering fatty acids from solutions containing the same, the steps comprising effecting chemical removal of the fatty acids by passing such solutions through a filter charged with an hydrous oxide at or below its isoelectric point and thereafter effecting recovery of said fatty acids by treatment of the hydrous oxide filter.

Water Soluble Perfumes

Aqueous solutions of essential oils can be prepared up to 40 per cent in strength, such solutions remaining perfectly transparent on dilution. The oils are thoroughly mixed with a strong soap solution such as 20 per cent potassium oleate, 33 per cent potassium ricinoleate, triethanolamine linoleate containing free amine, ricinoleic acid ammonium sulfate (commercial Turkey red oil, ammonia finish, made alkaline with ammonia), by stirring. The solution is then made up to volume with the soap solution. Formulas are given for solutions of oil of eucalyptus, citronella, turpentine, methyl salicylate and methyleugenol. Adrien Albert. *Australasian J. Pharm.* **20**, 30-3 (1939); through Chem. Abs.

Textile Agents

Compositions useful as wetting or cleansing agents in the treatment of textiles, or as emulsifying agents, are made by mixing a solution of a natural resin in caustic alkali with an aqueous solution of a quaternary ammonium salt in which the nitrogen atom forms part of a heterocyclic ring and in which there is an alkyl chain of at least 6 carbon atoms, e.g., hexadecyl-pyridinium halides and sulfates. Courtaulds Ltd., Croyden M. Whittaker and Clifford C. Wilcock. British Patent No. 501,020.

Stable Emulsions

Stable emulsions of higher fatty acids and glycerides of the oleic and ricinoleic series, higher paraffin hydrocarbons such as paraffin wax and mineral oils, hydrogenated phenol and cresols, and animal and vegetable waxes are made with the aid of a cyclohexylamine soap, e.g., with fatty acids of the stearic, oleic, ricinoleic or linoleic series or with cycloaliphatic fatty acids or naphthenic acids. Howards & Sons Ltd. and Leonard C. West. British Patent No. 501,521.

Theory of Emulsification

The formation of emulsions having maximum stability is fundamentally the problem of providing an interface having minimum tension. This involves building up an interfacial layer which is readily solvated by both the oil and water phases. The use of a suitable emulsifier having both hydrophilic and lipophilic groups provides an interfacial layer, while the solvation may be controlled by suitable additions to the water and oil phases, as by dissolving salts or fatty acids in the water or oil phases respectively. F. Seelich. *Fette und Seifen* **46**, 139-42 (1939).

OFFICIAL TEST INSECTICIDE

THE 1939 Official Test Insecticide specified for evaluating liquid household fly sprays by the Peet-Grady Method according to the official procedure of the National Association of Insecticide & Disinfectant Manufacturers, is stocked for prompt shipment in cartons of one dozen six-ounce bottles and in single six-ounce bottles.

Send orders or requests for information direct to the Executive Office of the National Association of Insecticide & Disinfectant Manufacturers, 110 East 42nd St., New York. The official test insecticide is available to all firms or laboratories whether members of this Association or not.

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Filtering Soap Solutions

Cooling during the filtration of hot solutions often slows down the filtration period and sometimes stops it altogether. This is most apt to occur when cooling precipitates gelatinous material from solution as in the case of alcoholic and aqueous soap solutions.

The accompanying diagram shows the apparatus employed to avoid this. Soft copper tubing of 3/16 inch external diameter is shaped into a conical spiral in which a glass funnel rests. The copper spiral fits into an ordinary tin funnel, the latter serving to lessen radiation from the spiral. A hole is made through the tin funnel where the stem joins to allow exit for one end of the copper spiral. Steam is supplied, using a gallon oil can, and is led into the upper end of the spiral. Care should be taken that the steam flow is downward and that there are no kinks in the connecting tubing. The steam can be led off by any convenient length of tubing from the other end of the spiral. Frank M. Biffen. *Chemist Analyst* 28, 44 (1939).

Fatty Acid Determination

A simple and rapid method for the determination of the fatty-acid content of soaps can be made volumetrically. Special volumetric flasks are required with long graduated necks resembling burets. A steam bath or water bath is also necessary as the contents of the flask must be heated to constant temperature.

To make the determination dissolve 10 or 20 grams of soap sample in about 200 cc. of distilled water in a beaker. When completely dissolved transfer quantitatively to the special 250 cc. flask. Set free the fatty acids present by acidifying with mineral acid to a methyl orange endpoint. When the evolution of gas has ceased and the fatty-acid layer has cleared add enough hot water to bring the fatty acid layer into the neck of the flask where its volume can be read. The contents of the flask must be at a constant temperature, preferably at about 100° C. The fatty-acid content of the sample is calculated from the volume reading multiplied by the specific gravity of the fatty acids at the particular temperature, the weight of the sample being taken into consideration. Results agreed with those obtained by the "wax-cake" method and average about 0.1 per cent higher than those obtained by the ether-extraction method. H. Leue. *Fette und Seifen* **46,** 133-4 (1939).

For Checking pH Apparatus

A new series of reference standards known as Hydrion Buffer Capsules for checking electrometric pH apparatus is announced by Micro Essential Laboratory, Brooklyn, N. Y. The buffer is a powder carefully standardized and packaged in capsules, and distributed by R. P. Cargille, New York City.

Hardening Soybean Oil

Soybean oil with a low acid value is easily hardened in the presence of quadruple-component catalysts. Catalysts of the copper-nickel-cobalt series are more active than those of the copper-nickel-manganese series. Vanadium and calcium promote the activity while zinc decreases it. The iodine number decreases with increase in the hardening pressure. Higher alcohols are formed in very small amount if at all. S. Ueno and T. Tazumi. J. Soc. Chem. Ind., Japan **41,** Suppl. binding 323-4.

Regenerating Fuller's Earth

Fuller's earth used in refining oils and fats and containing these is purified by heating with solutions of alkali silicates in which the proportions of SiO_2:M_2O is not greater than 2:1 (M stands for an alkali metal). Thus, Fuller's earth used to decolorize linseed oil is stirred into hot water containing SiO_2:Na_2O in the proportion of 0.97:1 and boiled. The linseed oil is emulsified and eventually forms a layer on top of the water, the Fuller's earth remaining in the bottom. Henkel & Cie. G.m.b. H. German Patent No. 670,830.

Fat Recovery After Bleaching

The amount of fats and oils treated with bleaching earth as a method of purification is large. The adsorptive earth retains an amount of oil between 33 and 50 per cent of the weight of the earth, which represents a serious loss. This can be avoided in part by blowing air through the filter cake under a gentle vacuum as soon as the filter press has been emptied of oil. This recovered oil is kept separate from the regularly filtered oil and added to the next batch of crude oil to be filtered. Too strong blowing through the filter cake causes oxidation of the oil. Oil recovered as described here is free from oxidized odor and can be safely added to another batch of oil ready to be filtered. F. Wittka. *Fette und Seifen* **46,** 344-5 (1939).

Soap Alkalinity

The alkalinity of soap solution as compared with other alkaline materials was determined by titrating 0.5 normal solutions of the alkaline materials with 0.5 normal sulfuric acid. The table gives the number of cc. of the acid used to bring the various solutions to the approximate pH values shown, as determined by the use of indicators. The acid was added to 20 cc. of alkaline solution. The figures show the relatively high proportion of free alkali in sodium metasilicate, the lower proportions in waterglass, trisodium phosphate, soda and soap, in that order. Values more acid than those corresponding to pH 8 show the relative amounts of bound alkali present in the various solutions. Clemens Bergell. *Seifensieder-Ztg.* **66,** 406-7 (1939).

Approximate pH Value	*Soap*	*Soda*	*Trisodium Phosphate*	*Waterglass*	*Sodium Metasilicate*	*Caustic Soda*
10	0	8.3	10	13.8	17.5	19.7
8	1.5	10.2	11	17.0	19.1	19.75
6.5	8	16.1	18.9	18.5	19.6	19.8
5	19	19	19.7	19.3	19.8	19.95

Fatty Alcohol Sulfates

Purification of the sodium salts of the higher alkyl sulfates was by extraction with organic solvents and recrystallization. The data suggest that in acid hydrolysis for purposes of analysis, the reaction is approximately completed by boiling the C_{18}– or C_{16}– esters with 2 *Normal* hydrochloric acid for 90 minutes, the C_{14}– ester with 3 *Normal* hydrochloric acid for 4 hours, and the C_{12}– ester with 2 *Normal* hydrochloric acid for 3 hours.

At 60°C. the C_{12}– to C_{18}– esters are soluble to 0.5 per cent; at 20°C. the C_{12}– ester is soluble to 0.2 per cent. At 60°C. the concentration for minimum surface tension of the ester solutions is: C_{12}– 0.25, C_{14}– 0.1, C_{16}– 0.01 and C_{18}– 0.005 per cent. Interfacial tensions against kerosene show similar minima. Addition of 2 *Normal* sulfuric acid lowers the surface tension and interfacial tension. With 2 *Normal* sodium hydroxide solution all values are lowered except one; the surface tension for the C_{18}– ester is raised. Addition of 100 grain (German) hardness of calcium chloride lowers the values for C_{12}– and C_{14}– esters but raises them for the C_{18}– ester. Tension-values are higher with a decrease in temperature for the higher esters. In general, addition of 40-200 per cent of the weight of ester in terms of sodium sulfate lowers the surface tension and interfacial tension against kerosene, with 0.01-0.1 per cent solutions of the esters. W. Kimura and H. Taniguti. *J. Soc. Chem. Ind., Japan* **42,** Suppl. binding 89, 89-91, 95-8 (1939); through Chem. Abs.

Oil of Rose

Rose oil contains an odorless hydrocarbon called stearopten having the formula $C_{16}H_{34}$. Some rose oils contain as much as 74 per cent of this valueless constituent, depending on the source of the oil, e. g., Bulgarian rose oil has a content of 10-20 per cent of stearopten, Indian rose oil about 20 per cent, German 26-34 per cent, French 36-51 per cent and Tea Rose about 74 per cent. Alcohols play the most important role in the general composition of the rose scent, namely geraniol, $C_{10}H_{18}O$, and citronellol $C_{10}H_{20}O$, the former being present in much the larger proportion. S. Isermann. *Progressive Perfumery and Cosmetics*, March, 1939.

Distilling Glycerine

The glycerine is distilled by heating by indirect contact with saturated steam under pressure, with the resulting condensation of water from such steam and with vaporization of the glycerine. The pressure on the condensed water is then reduced and the latter brought into indirect contact with the hot glycerine vapors to effect their condensation and generation of steam from the water at a lowered pressure. The steam so generated is passed directly into the glycerine undergoing distillation to promote such distillation. The apparatus for this comprises a still having closed steam heating surfaces to distil the glycerine, a boiler-condenser in which the heat of condensation of the glycerine generates steam, and means for drawing off condensed water from the closed steam heating surfaces and supplying it to the boiler. Martin Ittner to Colgate-Palmolive-Peet Co. British Patent No. 486,311 and 486,415.

Rapid Titre Test

A figure that is practically identical with that of the official titre test can be obtained by separating the fatty acids from soap in the usual way, then stirring the fatty acids in a ½-inch test tube, noting the top temperature at which the reading becomes constant, and adding 0.5°C. This gives a result close enough for all ordinary purposes. A. Rayner. *Soap, Perfumery and Cosmetics* **12,** 616 (1939).

Soft Soap

A soft soap is made from 100 parts of oil, 50 of resin and 150 parts by weight of 22-5° Be. caustic soda lye. Rene Bernege. French Patent No. 837,509.

Maltol not an Antioxidant

The greater resistance to rancidification shown by coffee substitute prepared by roasting malt was thought to be due possibly to the product's higher content of maltol (2-methyl-3-hydroxy-1.4-pyrone). Addition of maltol as such or as an aqueous or chloroform solution to various fats failed to inhibit rancidification during storage with exposure to diffuse daylight or to ultraviolet light. In olive oil previously submitted to heat or in fats of animal origin, maltol tends to accelerate oxidation. Its action as an antioxidant was effective only under highly acid conditions, such as pH 2.6. Aqueous extracts of coffee substitute have a definite antioxidant activity. This requires further study. J. Kochling and K. Taufel. *Fette und Seifen* **46,** 127-31 (1939).

Selective Oxidation of Fats

Selective oxidation of animal and vegetable fats is used as a means of determining purity. Conditions are given under which the amount of oxidation of the more highly unsaturated acids is far greater than that of the less unsaturated and the difference between them is constant and measurable. This new "constant" depends largely on the relative proportions of the unsaturated acid components of the fat, as well as on their total amount. The test should be of special value in the detection of hardened fats. The method is rapid and suitable for use in routing analysis. W. A. Alexander. *Analyst* **64,** 157-62 (1939).

Wool Fat

Wool fat is split up into fatty acids and alcohols by (1) subjecting to a long steam-distillation at atmospheric pressure and about 400° C., and (2) saponifying the distillate with caustic soda and steam-distilling at reduced pressure or in a high vacuum at a low temperature to distil off the nonsaponifiable alcohols. The residue is fatty acid in the form of soap. This is recovered by treatment with sulfuric acid. Metallgesellschaft A.-G. German Patent No. 656,556.

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Violet	Narcisse	Lilac	Blossom
Gardenia		Wisteria	

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LAVENDER *(lavender color)*	ORANGE BLOSSOM *(orange color)*	CARNATION *(cerise color)*	

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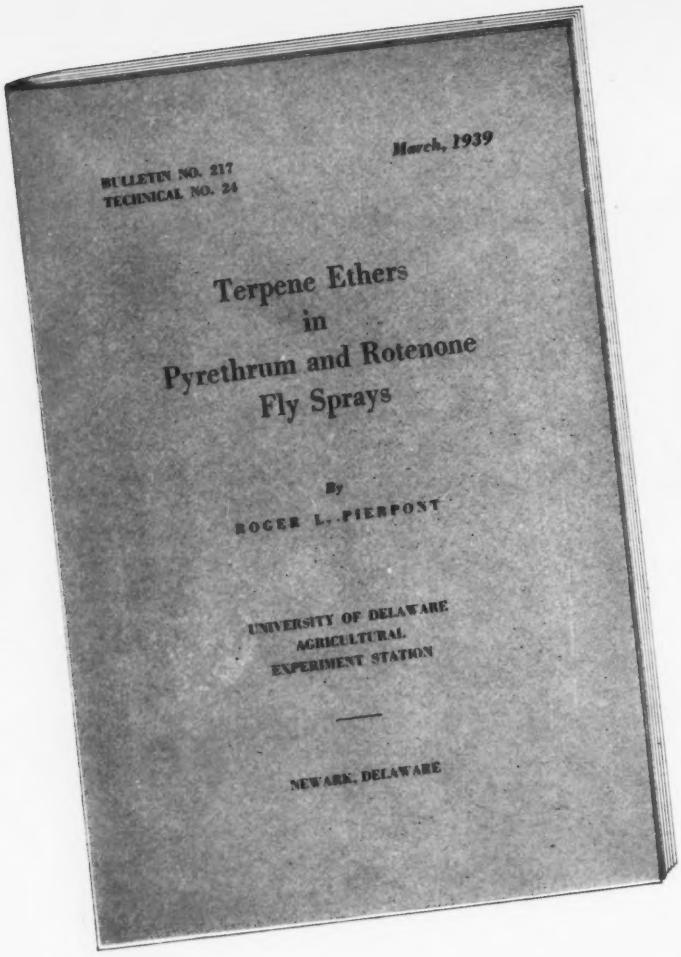

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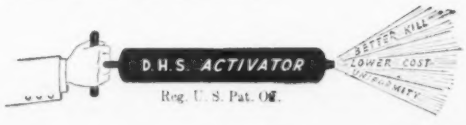

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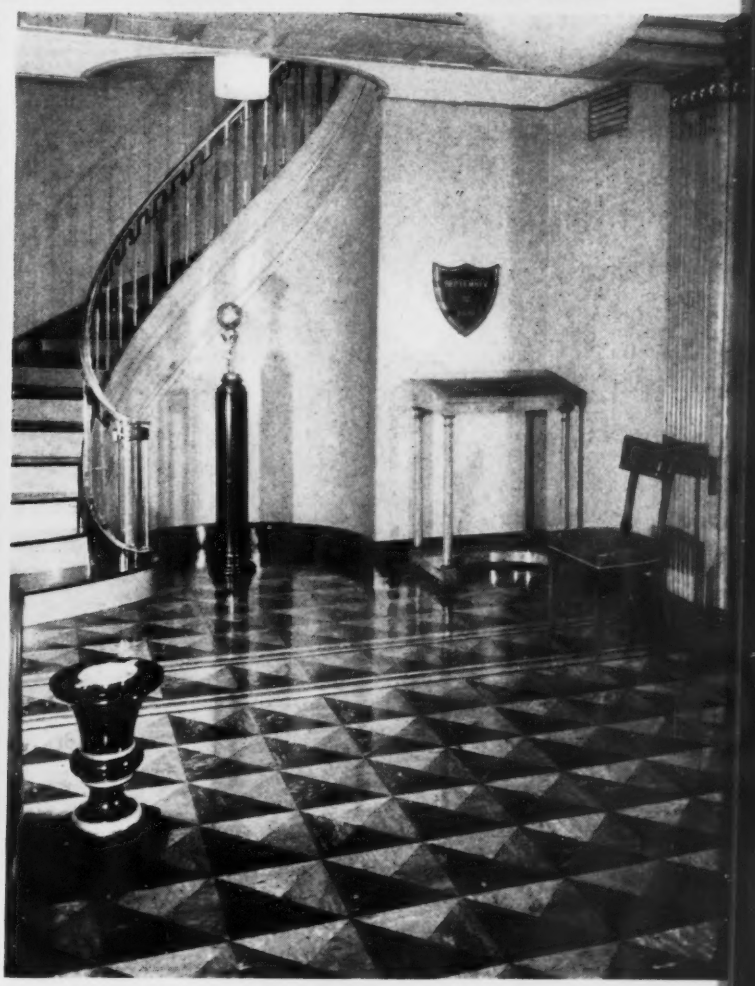

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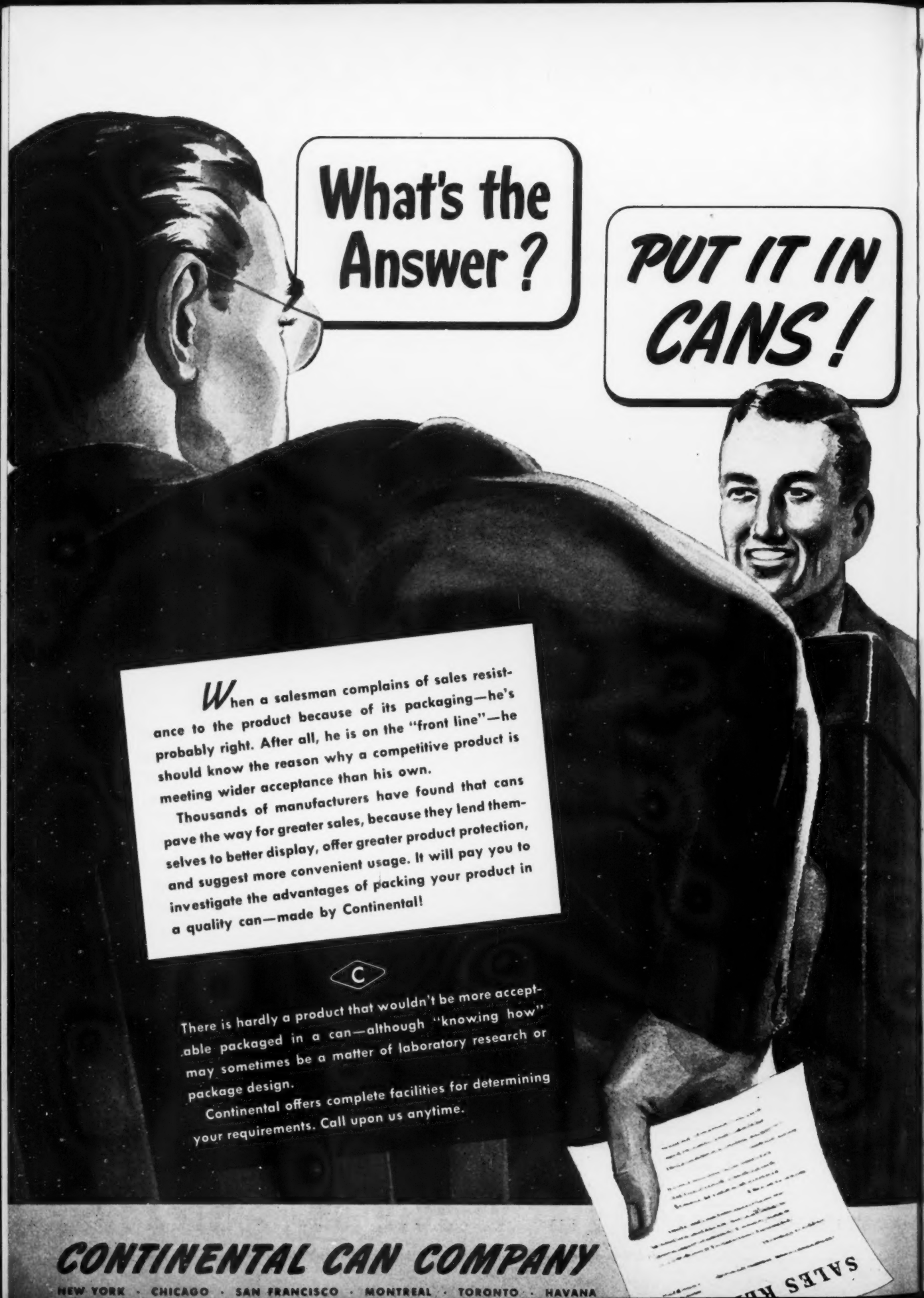

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Sanitary Products

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

EARLY in December at Washington, D. C., the National Association of Insecticide & Disinfectant Manufacturers will celebrate the completion of 25 years activity in the industry. Inasmuch as the Association held its first meeting there in 1914, that city was chosen for the silver anniversary meeting this year. The Association plans on playing host to a number of the officials of various Government departments which are interested in its work. The general attendance from the industry will probably be the largest of any meeting ever held,—and it will be a good meeting **not** to miss. Plan now to attend!

THE "moribund kill" controversy rises to confront us again. Those who maintain that moribund flies should be counted as "deads," are urging that the Peet-Grady Test be changed accordingly. Advocates of "moribund kill" are those interested principally in products containing rotenone derivatives and certain of the synthetic insecticide materials. Others, those chiefly who put out straight pyrethrum sprays, state that there should be no change in the Peet-Grady Test, and that only dead flies should be counted as "deads."

There are strong arguments on both sides. Moribund flies are held for all practical purposes to be dead. But, those who oppose change ask the hard-to-answer questions: "Just what is a moribund fly,—and where is the line between a live fly and a moribund fly?" This problem must be viewed dispassionately on its merits and without too much of commercial considerations. We certainly do not want a "Treaty of Versailles" in the insecticide industry.

FROM a newspaper report of the death of a woman caused by eating pancakes containing an insecticide, we quote: "The police were trying to determine how the insect powder got into the pancakes." Analysis of contents of the digestive tract showed the presence of fluoride. Investigating, we found that it was white untinted fluoride used mistakenly for baking powder. The incorrect designation of this particular insecticide as "insect powder" is of no material consequence. The fact that a fluoride found its way into a kitchen and caused a poisoning is very important in that it gives public officials everywhere the incentive to clamp down tighter with restrictive regulations on all insecticides. Were the product tinted, it could not have been mistaken for baking powder or flour.

For any insecticide manufacturer or pest control operator anywhere, even in the absence of state of local regulations, to take chances in this day and age with white fluoride is difficult to understand,—but many do. One case like this might mean business ruin, but there continue to be those who will gamble with human life and their own future.

Manufacturers differ in their recommendations for the application of bedbug liquids, but the use of a large oil can is often specified. This writer calls them impractical.

The Pros

ETYMOLOGISTS, the people whose business it is to find word derivations, tell us that the term "bug" was originally used in the sense of bogy, hobgoblin, or "terror of the night." This derivation is interesting and easy to understand, yet to the individuals who must share a rather intimate companionship with these "terrors of the night," I am sure that a mere hobgoblin would be a welcome relief.

Bedbugs have been associated with man since the time when he lived in caves and presumably shared these quarters with the original bedbug host, the bat. As is the case with many of men's anthropod friends, a considerable apathy towards the presence of the bedbug has developed through the centuries and even today their presence and elimination is characterized not as a community problem, but as a problem strictly of the individual, usually, much to the dismay and disgust of the person whose home is infested and to the smug mirth of his acquaintances.

Although no official figures are available, it has been estimated by surveys in various European and American cities that at least 65 per cent of homes in large metropolitan areas are infested with bedbugs at one time or another. If this figure is at all indicative of the annoyance and discomfort caused by this one insect, it would be logical to assume that some congruity of opinion, based on scientific experimental work, would exist as to the best control procedures against it. The exact opposite, however, seems to be the case. Insecticide manufacturers, pest control operators, and professional entomologists all seem to have their own ideas on what constitutes a good, practical bedbug insecticide.

Recommendations for bedbug control emanating from official state and federal experiment stations show a very definite difference of opinion and at the same time an almost total disregard for proprietary bedbug insecticides. An analysis of the official recommendations distributed by various state experiment stations has brought to light some rather interesting data. In all, control procedures from twenty-one states issuing such recommendations were examined. Generally, two to four possible control measures were offered. A summary of these recommendations follows:

Insecticide	*No. of States Recommending*
Hydrocyanic gas	17
Sulfur fumigation	14
Gasolene or kerosene.....	13
Superheating of homes.....	10
Mercuric chloride solution...	7
Boiling water	4

and Cons of

BEDBUG CONTROL

An informal discussion of bedbug control products and procedures

by William Haude
John Powell & Co.

Pyrethrum sprays	4
Ethylene oxide and carbon dioxide	2
Pyrethrum powder	2
Methyl formate	1
Rotenone sprays	1
Fire steam	1
Kerosene and turpentine.....	1
Turpentine and linseed oil...	1

It is evident from this list of recommendations that a great many of the treatments offered are either poisonous, extremely disagreeable to use, or just not practical for use by an inexperienced operator.

Outside of the four states which indicated that pyrethrum fly sprays could be used to advantage, no mention was made of the fact that proprietary bedbug liquids were available for use in the home. It is also interesting to note that the use of petroleum oil sprays containing phenol or cresol toxics were not recommended in any case, yet these materials characterize most of the specialty bedbug insecticides offered on the market today.

In attempting to evaluate insecticidal materials and procedures for bedbug control, numerous factors other than efficiency in its strictest sense must be taken into account. First, the material must be safe to use by the average housewife; second, it must be easy to use, and third, it must not harm household furnishings or other materials with which it may come in contact.

If these basic qualifications are applied to the list of control measures now generally recommended, it will be seen immediately that fumigation by hydrocyanic gas, sulfur, methyl formate, etc., are entirely eliminated because of the dangers to human health which are involved. On the basis of efficiency, there can of course be no doubt that fumigation, particularly with hydrocyanic gas, is the most efficient means of controlling severe infestations of bedbugs. Its use, however, should be retricted to the licensed fumigator who has the equipment and experience necessary for satisfactory results. It is not a practical treatment for use by the average home owner who, even though he may escape with his life, will invariably forget to remove his wife's potted plants, the canary, the gold fish bowl, or any of the numerous other things which must be taken into account.

Solutions of corrosive sublimate or nitrobenzine used as a spray or applied with a brush are likewise extremely poisonous and dangerous, yet they are quite extensively recommended and used. Generally, the corrosive sublimate is dissolved in a mixture of alcohol and turpentine, materials which are in themselves objectionable because of their solvent properties for varnishes and paints. Because of this danger to household furnishings, such crude treatments as boiling water, steam, linseed oil, etc., must also be eliminated as impractical.

The use of powdered insecticides in bedbug control work is generally unsatisfactory because of the difficulty in getting the material into cracks and crevices where the insects abound. Pyrethrum and derris powders are very toxic to bedbugs when they can be hit with the dust; however they have no value against the eggs. Nicotine dust, sodium fluoride, paradichlorobenzine, and other commonly used household insecticides are of little or no value.

From the standpoint of all around efficiency, ease of use and safety, oil sprays containing a suitable toxic agent may be regarded as the most satisfactory insecticides for general bedbug control. The optimum specifications for such a spray, however, are subject to much divergence of opinion.

At the present time, the majority of these so-called bedbug liquids consists of solutions of cresols or phenols in kerosene. Of these coal tar derivatives, commercial cresylic acid at a concentration of

2 to 5 per cent is most frequently used, although within the past few years more attention has been paid to the refined meta and para cresols, because their odor and color are considerably less objectionable. The use of carbolic acid, although still quite extensive has lately given way to cresylic acid. However, combinations of the two materials are used by many professional pest control operators.

OUTSIDE of their economy, it is difficult to ascertain why these cresylic and carbolic sprays have become so firmly intrenched in the insecticide field. Their odor is rank; their insecticidal value is open to considerable question; and they are decidedly irritating to the skin if not dangerous when sprayed in closely confined quarters. One reason which has been offered for their continued use is the association which the consuming public has made between potency and the strong rank odors characteristic of these materials. In fact, this association has gone so far that the strong smell of cresylic acid in a room immediately conjures up the thought of bedbugs.

Experimental evidence to substantiate the efficiency of cresol and phenol compounds either as contact poisons or as ovicides in bedbug insecticides is definitely lacking. It is of course true that these sprays will give a high percentage of control against bedbugs if they are applied correctly; however, this appears to be due largely to the insecticidal action of the oil alone.

Among the list of toxic agents which have not been found objectionable from the standpoint of odor or danger to human health are rotenone, pyrethrum, and a number of so-called "pyrethrum substitutes." When properly formulated in a suitable type of petroleum oil base, any of these insecticidal ingredients are extremely toxic to bedbugs.

Of these materials, rotenone has probably received less attention from manufacturers of bedbug insecticides than is warranted by its merits. In an insecticide designed primarily for bedbug control, it is generally advisable to have a concentration of approximately one to two tenths per cent actual rotenone in an oil base of suitable viscosity.

Due to the fact that rotenone is practically insoluble in petroleum oils, it is of course necessary to include a mutual solvent in the formula so as to maintain a solution or colloidal dispersion of the rotenone. This necessity for a mutual solvent, and the lack of an entirely suitable one constitutes one of the principal obstacles in developing an entirely satisfactory rotenone spray. At the present time, ethylene dichloride, cyclohexanone, and a number of patented solvents are being used.

The toxic action of rotenone sprays against bedbugs is characteristically slow and is in no way as spectacular as that of pyrethrum. Its principal advantage, however, lies in the fact that after the petroleum oil base of the spray has evaporated, a fine toxic deposit of rotenone remains for a considerable length of time. The toxic value of this fine rotenone film is of course gradually destroyed by the action of light and atmospheric moisture; however, under normal conditions, the residual action may be effective for a week or more, a characteristic not found in other commonly used contact insecticides.

A good household insecticide containing pyrethrum or one of the "pyrethrum substitutes" is undoubtedly one of the most efficient weapons available to the average person for bedbug control. In those cases when the housewife or person doing the work is unable to get satisfactory results with a fly spray type of insecticide, it can usually be traced not to the insecticide, but to the method and thoroughness of application.

The average household sprayer in use today is not entirely satisfactory for application against bedbugs. Although it is desirable to have a fine, floating mist to control flying insects and those crawling insects which are accessible to that type of spray; in the case of bedbugs, a strong driving spray composed of larger spray particles is more effective. In other words, for satisfactory bedbug control it is necessary to have a wetting spray which can be directed with as much force as possible into cracks and crevices where the bedbugs are to be found. To accomplish this end with an ordinary hand sprayer requires considerable effort and material, the result being that the average individual using a household fly spray does not use enough spray to do a thorough job.

Many liquid bedbug insecticides on the market today are packaged in containers with an oil can type of spout. These containers are, in the writer's opinion, not only impractical, but wholly inducive to poor results. In a room moderately to heavily infested with bedbugs, practically every crack and crevice must be treated with the insecticide to be sure of satisfactory control. To accomplish this with an oil can dispenser is practically impossible.

IN A liquid bedbug insecticide, the use of a suitable petroleum oil base is extremely important both from the standpoint of toxicity and coverage. Gasoline or kerosene are quite generally recommended in the literature. Work in 1918 by E. W. Scott, W. S. Abbot and others of the United States Dept. of Agriculture showed that gasoline, Stoddard solvent, and other similar light oil fractions, although toxic to bedbug adults, were not effective against their eggs. In fact, no oils of lower than kerosene viscosity were found to be completely effective. The fact that the eggs sprayed with these oils apparently hatched in a perfectly normal manner indicates that although they are effective against bedbugs, they vaporize so rapidly that the oil does not penetrate the eggshell and reach the embyro. Further the evaporation is so complete that hardly any residual action takes place against newly hatched nymphs.

One of the advantages of these lighter fractions is the greater coverage or "creep" which they will give

(*Turn to Page* 123)

What of MORIBUND KILL?

By Russell B. Stoddard

Dodge & Olcott Company

LONG arguments about moribund "kill" and its recognition as a factor in judging insecticides attained the status of a full-fledged controversy at the June, 1939, meeting of the National Association of Insecticide & Disinfectant Manufacturers. It seems likely to continue,—and not with diminished heat. Physicists recognize a close relationship between heat and light, but they do not serve the same purpose in a discussion, and it might be well to examine this question with a view to more light and less heat, particularly since moribund "kill" has been more thoroughly talked about than understood.

One reason for the heat is readily understandable when it is realized that the argument cuts far below the surface of technicalities and resolves itself on analysis into a decision on the broad question of whether the official Peet-Grady test method, or more correctly the official interpretation of the results of the Peet-Grady tests should remain unchanged or be altered in some essential particulars. Since the official method as it now stands gives a definite advantage to certain materials, notably pyrethrum, and works correspondingly to the disadvantage of others, and since any alteration while it may change the present situation will almost certainly benefit some materials to the disadvantage of others, the generation of a certain amount of friction and heat is not hard to understand. Suppliers who have invested capital, time, and effort in the production and promotion of materials have a lot at stake and can hardly be expected to display a purely scientific and dispassionate attitude toward the controversy.

A "MORIBUND" fly is one which is dying or at the point of death, but not actually dead. In testing insecticides by the current Peet-Grady Method, paralyzed flies which cannot fly or walk, are classed as "moribund," and are NOT included in the count of "deads" The controversy to which the author refers is between those who maintain that these "moribund" flies should be counted as "deads," and those who hold that they should continue to be classed as "alive" as at present. The suggested change would entail in some cases alteration in commercial insecticide gradings from present designations. Other articles on this "moribund kill" controversy will follow this discussion by Mr. Stoddard.—The Editors.

The manufacturer of the finished insecticides, though no less interested in the argument and its outcome, can view the subject with more calm and less prejudice, and by looking at the matter from his side some progress can be made. At least we can state what is, or should be, the question at issue.

The manufacturer of household insecticides presumably is not wedded to any particular material or materials, or to any specific method of testing them. His interest, and this is the basic interest of the Association and the industry, is in how to make the best and most effective insecticides at the lowest cost compatible with satisfactory quality. If the adoption of the moribund "kill" idea and the consequent modification of the official test method will help accomplish that, the modification should be made,—otherwise not. In the long run, and regardless of jockeying for advantage among suppliers, the question of moribund "kill" must be decided on that basis only. Moribund "kill," therefore, need be examined only from that point of view.

The Peet-Grady test method has been, is, and will continue to be, of inestimable value to the industry. The vast amount of time and effort which has been spent in developing and refining its technique has benefited everyone. Perhaps in time we may have better, simpler, and more accurate methods to replace it, but in the meantime it serves its purpose well. An important distinction must be drawn, however, between the test method itself and the interpretation of its results.

As it happened, the method was devised and perfected during a period when only one insecticide material, pyrethrum, was receiving serious consideration. It is no reflection on the method or the official standard derived from it to point out that the method as developed was adapted solely to one purpose, that of evaluating the relative strength of pyrethrum sprays, or to suggest that conclusions arrived at under those conditions, while they may be valid today are not necessarily so and require reexamination.

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without saying, but they have their peculiarities. It is characteristic of pyrethrum sprays that they have a rapid paralytic action on flies and will give a quick and complete knockdown in a few minutes, but that with sprays of normal strength, some flies are able to throw off this paralysis after a few hours and recover completely. Ten minutes exposure in the test chamber proved ample for the full knockdown effect and twenty-four hours proved long enough for the full recovery of those flies not fatally paralyzed, and permitted a sharp defferentiation between those flies which were stone-dead and those which had already fully recovered. No question of moribund "kill" arose because with very few exceptions, the flies were either completely dead or completely alive.

After long and careful checking of results and improvement of technique, all or practically all of the experiments being conducted with pyrethrum sprays, the test was officially standardized on the basis of ten-minute knockdown and twenty-four-hour kill.

When it became a question of adopting an official standard for household insecticides based on the Peet-Grady test, recognition was given to the fact that the general commercial practice was to make sprays on a basis of one pound of good pyrethrum flowers to each gallon of finished spray. Such sprays tested by the Peet-Grady method were found to give a ten-minute knockdown ranging from 95 to 100 per cent and a twenty-four-hour kill ranging usually from 50 to 65 per cent. Results obtained from different laboratories on the same sample were found to vary within rather wide limits and eventually after long discussion, the Official Test Insecticide was adopted as a standard in order to facilitate more accurate comparisons. In the meantime, satisfactory chemical methods of analysis had been devised so that it was possible to standardize the Official Test Insecticide on the basis of 100 milligrams of pyrethrins per hundred c.c. which is approximately the same as saying one pound of good pyrethrum flowers to the gallons of finished spray, but more accurate since it does away with any question of differences in the strength of the flowers used.

By the official standard today, all household insecticides are judged by their action in relation to this standard under the artificial conditions imposed. Insofar as making comparison of the relative efficiency of different pyrethrum sprays, the Peet-Grady test still is reasonably accurate and satisfactory, but in the meantime conditions have changed radically. Today instead of dealing with a single insecticide material, many are available and the number is increasing rapidly. Whereas some years ago household insecticides were made almost exclusively from pyrethrum, some of those in use today do not contain any pyrethrum, and others instead of depending on any single ingredient, show a very definite trend toward the use of several materials in combination, since it is becoming evident that all of the materials are selective to a degree in their action, and better results and broader efficiency are obtainable by choosing several ingredients which supplement each other.

UNDER these circumstances, it appears desirable to re-examine the official Peet-Grady test with a view to determining its applicability to present conditions. In this re-examination, the question at issue is not whether the present method favors one material at the expense of others, but whether it cannot be modified in some way to show a more direct and accurate correlation between the test results and the effectiveness of the product as it is actually used by the consumer. Moribund "kill" is entitled to serious consideration if its adoption represents an advance in this direction. As the matter stands today, there is an inevitable tendency to adopt and adapt formulas with more emphasis on what they will show in the Peet-Grady chamber than on how they will work in actual use.

There can be little or no argument as to what household insecticides must accomplish in order to live up to the claims made for them and satisfy the demands of consumers. Proper application is assumed. First of all they must give a rapid and complete knockdown for flies and mosquitoes, which means quick and complete paralytic action. Second, they must have a reasonably high degree of kill,—the higher the better. Third, in addition to their action on flies and mosquitoes, they must be reasonably effective against the other common household pests such as roaches, fleas, bedbugs, ants, etc.

The question is to what extent the official test method reflects these requirements and whether or not moribund "kill" has any value in this connection. First of all, a suggestion in regard to the knockdown feature may not be amiss. At present, a period of ten minutes is allowed for the knockdown. There is no necessity for changing this, but no housewife is going to be willing to wait ten minutes for action when she uses the spray. It is perfectly possible to make an insecticide which will give a highly satisfactory knockdown by the Peet-Grady method in ten minutes and yet be so slow in action as to be most unsatisfactory from the consumer's viewpoint. Even though the ten-minute period is retained in the test, it is well to consider if there would not be an advantage in also setting up a requirement for five-minute knockdown of a few points lower than is required for ten. Certainly no insecticide is satisfactory from a practical viewpoint unless it will give practically complete knockdown in five minutes under Peet-Grady conditions.

The real argument, however, comes in relation to the twenty-four hour count and how it should be made. Should a longer period be allowed before the count in order to evaluate properly some of the slower-acting materials? Or should moribund, that is semi-dead flies, be included in the count in some way? And if so, how should the count be taken and under what conditions? These are technical questions which

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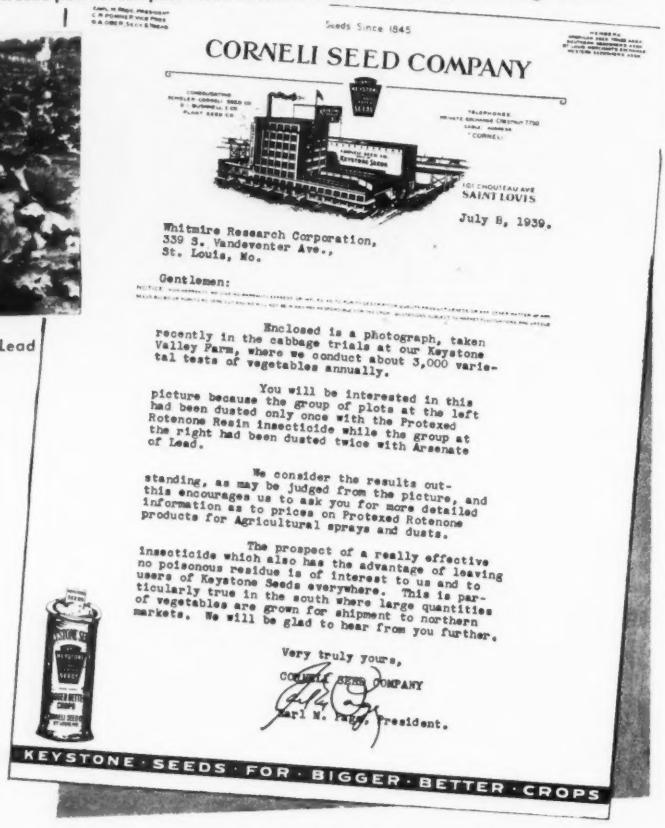

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in any event will give rise to plenty of discussion, and the point to be made at the moment is whether or not such changes, providing they can be worked out and agreed upon, will give us a more accurate comparison of the relative practical merits of different insecticides.

The argument is advanced more than occasionally that the housewife knows nothing about Peet-Grady results or twenty-four-hour kill, but judges sprays by knockdown, and what she wants is a spray which will knock down flies and mosquitoes quickly and completely and keep them down long enough so that she can sweep them up and burn them. There is something to be said for this idea and for the importance of quick knockdown, but the argument if carried to its logical conclusion then eliminates kill altogether from the judgment of insecticides and rates them solely on knockdown value. However, it must be remembered that flies and mosquitoes are not always swept up and burned, and sprays are used against many insects other than flies, so that kill value is vitally important.

What we can agree on is that the user is not much concerned with the question of whether flies and other insects which have been sprayed die in six, twelve, twenty-four, or forty-eight hours, so long as they are either dead or sufficiently moribund to pass for dead. Suppose we take two sprays for example. Let us say that one of the sprays is tested out on 100 flies. Sixty are stone-dead at the end of twenty-four hours, two or three are a little ill, and the balance normal or practically so. The other spray tested in the same way shows at the end of twenty-four hours 60 which are stone-dead, 20 or 25 which are so completely paralyzed that they are only able to move slightly when disturbed, a few more which can fly when they are encouraged sufficiently, and only two or three which behave normally. Other things being equal, can there be any question as to which of these two sprays is going to be of most genuine assistance in the long run to the consumer who wants to keep his or her premises as free as possible from flies?

It may be said that this is an extreme example, and perhaps it is, but it illustrates rather graphically the reason why there is so much argument about moribund "kill" and its recognition in the official test method. The advocates of the inclusion of moribund "kill" do not maintain that the present standard for twenty-four hour count of stone-dead flies should be reduced, but they do maintain that sprays which will give a good kill in twenty-hour hours and which will in addition incapacitate and eventually kill a substantial proportion of remaining flies should be rated higher than those which leave the remaining flies healthy and happy.

WHEN we come to the third requirement for household insecticides, — that they should be reasonably effective against roaches, fleas, bedbugs and other crawling insects,—we approach a complex subject on which there is plenty of room for argument. Obviously the kill of flies in the Peet-Grady chamber is no measure whatever of the efficiency of sprays against other insects except insofar as past practical experience with the materials in question provides a correlation. Unfortunately, we do not yet have any standard or convenient method of testing sprays comparatively against crawling insects and even though the difficulties in the way of adoption of such tests may not be insuperable, the indications are that it will take time and a vast amount of work to overcome them. In the meantime the industry proceeds by rule-of-thumb methods, the customary practice being to claim effectiveness against as many kinds of insects as the Food and Drug Administration will allow.

Moribund "kill" becomes of real potential importance in connection with this question of relative effectiveness against crawling insects. Fly sprays, using the term in the most limited sense, need only be effective against flies and by inference other winged insects such as mosquitoes. The term "household insecticides" has a broader significance and by obvious inference as well as by the customary claims requires effectiveness against the usual household pests which include roaches, fleas, bedbugs, and other crawling insects, as well as flies and mosquitoes.

The requirements, therefore, are not only practically, but biologically different. The practical demand switches from quick and complete knockdown to completeness of kill. Biologically, this means less striving for immediate wing paralysis as a chief requisite and more emphasis on leg paralysis and permanent toxic effect, particularly as the more resistant crawling insects have far greater ability than do flies to assimilate and throw off the effects of less than lethal dosages of some of the toxic materials in general use. This accounts for the rapidly increasing use of rotenone and rotenone derivatives.

Moribund kill, therefore, or at least such types of it as are evidenced by definite leg paralysis and progressive though slow mortality, is a direct indication of superior effectiveness against crawling insects even though the actual tests may be made on flies. That such a correlation exists and that it can be demonstarted readily and conclusively is fact and not theory. The really difficult step will come in working out the scientific and practical details in such a way as to permit accurate comparisons expressed in percentages.

This may, and undoubtedly will, require time and effort and give rise to differences of opinion, but more difficult problems have been solved. The first step has been taken in the recognition that moribund "kill" can be an important indicator and will help in the progress toward higher standards of performance for household insecticides.

———♦———

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The Aircraft Insect Problem

By H. L. Ramsey

Heston, England

THIS aircraft insect problem is comparatively new. It arose in fact a few years ago, for it was only to be expected that when mankind took to the air he would find his mortal enemy, the insect, already to some extent in possession of that element, ready to continue the eternal conflict. It may be that there is only one issue to that conflict,—the ultimate victory of the insect, and the last man on earth will expire with an insecticide sprayer in hand and a mosquito net over his head, whilst the mosquitoes sing his requiem and the ants come to clean his bones. This is perhaps a trifle premature and not quite fair to the insecticide industry.

In the meantime, British air lines engaged in some of the trans-African services, such as Imperial Airways Ltd., have come up against this insect problem in an acute form, owing to the risk of transmission of yellow fever and malaria by insects carried on aircraft. It has even been suggested by Dr. Sarel Whitfield of the Imperial College of Science and Technology, London, that the proposed extensions of the African air lines to India and Australia should be postponed pending the better control of the insect problem. It seems somewhat drastic that air traffic should be curtailed because the mosquito and his friends are buzzing viciously, especially since Captain Taylor, piloting the flying boat "Guba" on a survey trip, recently arrived on the east coast of Africa and expressed the view that all the island bases fulfilled expectations, so there was no reason why the proposed new services should not start at once.

Dr. Whitfield, however, has been busy at Khartoum for the past four years collecting insects carried on aircraft and will shortly publish his results in detail in the *Bulletin of Entomological Research*. He himself is so impressed with the dire possibilities of disease transmission that he has uttered the above warning, and it may be taken as a challenge to insecticide manufacturers to meet the situation, at least so far as Africa and South America are concerned, and probably other parts of the world also. In the first place, the areas of endemic yellow fever have been shown by means of the mouse protection test to be considerably greater in extent than was realized even a year ago. In Africa in particular the area has been extended much further east, quite possibly to the Abyssinian foothills.

In the second place recent research has shown that the number of varieties of insect capable of transmitting the virus of yellow fever is constantly being augmented, and the evidence deduced therefrom is reinforced by field investigations of recent outbreaks of jungle yellow fever. The latest research on insects collected from aircraft has shown a surprisingly large range of families and species. More than two thousand aircraft were examined at Khartoum during the period between July, 1935, and August, 1938, and excluding common housefly varieties, the total number of specimens was 1960, comprising no less than 146 species. This is the number captured. We do not know how many escaped capture.

From the point of view of insecticides, the increase in the number of different kinds capable of fever transmission is not perhaps so important as from a pathological or entomological standpoint. Yet it is sufficiently important, for although it may not be necessary to have 146 different kinds of insecticides to deal with 146 different kinds of insects, it is well known that the various kinds

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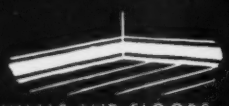
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The British company, Imperial Airways Ltd., has in fact undertaken in the last two or three years a considerable amount of research aiming at the discovery of the best type of insecticide for aircraft and the best methods of application. A recent talk with them indicates that they have the matter well in hand, and an interim report on the work done by their medical officer, Colonel F. P. Mackie, M.D. and his collaborators was published in the *Lancet* in August, 1938. Particulars of the investigations continued since then will become available later.

Summarizing the report referred to, it may be said that attention has been focused mainly on the mosquito and transmission thereby of yellow fever, as this is the principal risk to which aircraft are exposed. It is particularly referred to in the regulations laid down in 1933 by the International Sanitary Convention for Aerial Navigation and repeatedly mentioned by the Quarantine Commission of the Office International d'Hygiene publique. Hitherto the local sanitary authorities have had the chief responsibility in this matter, but some of the air service companies are certainly bearing their share, and are co-operating with the local authorities. For example, Imperial Airways Ltd. has been working in close touch with Dr. Park Ross of the Union of South Africa, also with the South African Fumigation Co. who have introduced a simple and economic method of spraying insecticide with a carbon dioxide pressure apparatus.

The use of a gaseous insecticide was first considered, one which could be pumped into a closed fuselage and subsequently blown out by the ventilation system, such as hydrocyanic acid, ethylene oxide, or methyl bromide. But these require further study and the length of time involved in their use is a disadvantage.

The large majority of insecticides now in use depend for their efficiency on pyrethrum or rotenone derivatives and certain synthetics. These are generally dissolved in a petroleum base with or without carbon tetrachloride to reduce inflammability. One such in common use is composed of pyrethrum extract one part, low flash point white paraffin oil 16 parts, and carbon tetrachloride 68 parts.

The ideal insecticide for aircraft work should be (a) highly toxic to insects; (b) non-inflammable; (c) innocuous to passengers; (d) non-corrosive and non-staining; (e) stable in the form used for transport and storage; (f) miscible with water and adapted for spraying. It is obvious that paraffin base preparations do not conform with (b) and the addition of tetrachloride produces undesirable effects on human beings, especially when flying, and without wholly removing the fire risk, a matter of the utmost importance. Aqueous base products were therefore tried out and of those so far tested, a product by Stafford Allen Ltd. under the name of "Deskito" has appeared best to fulfill the stringent conditions. The apparatus used may range from the domestic spray gun to powerful pumps operated electrically. In the present tests, the carbon dioxide pressure device was used, whilst for the disinfestation of passenger cabins a phantomyst nebuliser made by Andre (Components) Ltd. was found quite suitable. Demonstrations of this outfit were given enroute from Cairo to Durban to local authorities with reported satisfactory results. The precise method of use depends on the ventilation system of the aircraft.

One type of disseminator is specially designed for use with dry insecticide in the passenger cabins, whilst another, the ejector type, is more suitable for luggage holds, bedding, lockers, etc. The Phantomyst is driven by the aeroplane's electric supply and may be carried from cabin to cabin. It is calibrated to distribute a given quantity per minute, and a label is attached indicating the time required for each cabin. The ejectors are a simple form of spray gun with containers to hold 50 c.c. of insecticide. Six of these were installed on the flying boat "Cassiopeia," and the total weight of equipment was 32 lbs. Some results of tests showed that mosquitoes were killed within 8-13 minutes after exposure to 18 c.c. of 1 in 14 "Deskito" in a space of 1100 cu. ft. In all cases account has to be taken of the conditions of flight especially as affecting air currents and the general ventilation of the aircraft.

Dr. Ross Park was not altogether satisfied with the speed of kill or its completeness and thought that his own preparation, a pyrethrum compound, was more satisfactory, but this latter is a paraffin base product. In some further tests on the flying boat, "Cambria," over Southampton Water (south coast of England) the kill of mosquitoes was somewhat speedier, namely 2-11 minutes, although there were one or two exceptionally resistant specimens which survived until next day. Similar results are reported by C. B. Symes, Government Entomologist of British East Africa, whose work on aircraft insects is well known; and by Prof. J. W. Munro of the Imperial College of Science and Technology.

Soap in Disinfectants

Phenol disinfectants are usually made as cheaply as possible, the emulsifying agent used being soda soap. A study of the soap composition to give maximum emulsifying powder both with respect to the amount of water added and the amount of creosote oil, led to the following conclusions: The hardness number of the soap should lie between 125 and 140, other conditions being the same. The best results are obtained with a blended soap containing about 50 parts of castor oil, 35-40 parts of peanut and linseed oils, and 10-15 parts of rosin. One part of this soap in 4 parts of water emulsified 6 parts of creosote oil. The product is stable and gives satisfactory dispersion in water when in use. R. L. Datta, S. C. Sen and N. N. Bose. *Soap, Perfumery and Cosmetics* **12**, 5835 (1939).

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METAL POLISHES (PART II)

By Dr. C. A. Tyler

LIQUID metal polishes are of two types, naphtha-base and water-base, the former today being the less important. Naphtha serves as a cleanser by dissolving greasy matter. Such a polish requires a stabilizer to keep the abrasive in suspension, which is usually an ammonium soap. This soap decomposes during the application of the polish, the ammonia being dissipated as a vapor, and the fatty acid liberated reacting to form a very thin film of heavy-metal soap. This layer of metallic soap is supposed to give "color" to the metal and to serve in a minor way in preventing future corrosion. The approximate composition of a commercial product is as follows:

	Per Cent
Red oil	4
Aqua ammonia, 26° Be	2
Silica	30
Petroleum naphtha, 45.5° Be	64

The red oil is dissolved in the naphtha, the silica stirred into this and the ammonia added with vigorous stirring. Ammonia attacks the tarnish by forming soluble complex metallic compounds and thus aids in cutting deep-seated corrosion. A simple mixture of naphtha, silica and a little stearic acid is a good polishing agent but has a strong tendency to cake and is used very little. The drawbacks of the naphtha-base polishes are the inflammability of the solvent, so that manufacturing and storage conditions are subject to strict regulation in some localities due to fire hazard,—and the somewhat gummy nature of the product which may fail to please the user. Water-base polishes are much more numerous and probably more generally successful.

Water-base polish is usually an aqueous suspension of siliceous abrasive stabilized with soap. The usual procedure is to form ammonia soap in the polish by the mixture of fatty acid and excess ammonia. Colloidal clays are occasionally em-

ployed as suspending agents but tend to make the product too slippery so that it fails to take hold and therefore makes polishing difficult. Ammonium salts of certain organic acids have stabilizing properties in addition to their cleaning action. The object is to reduce the amount of soap and so reduce the viscosity, that is, to make the product as thin a liquid as possible. The thinner the suspension, the less abrasive is required and the greater the surface covered by the same amount. Such suspensions can be made so that they never settle out. The polish is usually rubbed over the surface of the metal and then rubbed up while still wet. The chief criticism is that the polish clings in the grooves and interstices of the object being polished. This may be met by advising the use of a soft brush on such surfaces, a cloth being satisfactory for a smooth surface. When the product is colored yellow with ochre or red with rouge, any residue left in grooves shows up less than with a white product.

A polish with good chemical cleaning action is as follows:

	Per Cent
Silica	12.0
Ammonia soap	3.0
Ammonium oxalate	0.5
Free ammonia, 26° Be	3.5
Pine oil	1.0
Alcohol	4.0
Water	76.0

The pine oil is added for odor, the alcohol has some thinning effect and is reputed by the trade to improve the rate of drying. It is doubtful if this proportion can have any influence on the rate of evaporation.

A similar product but much higher in abrasive content and much heavier-bodied is the following:

	Per Cent
Silica	25
Ammonium oleate	5
Ammonium oxalate	4
Aqua ammonia, 26° Be	2
Alcohol	6
Water	58

The abrasive may reach an even higher proportion as in this:

	Per Cent
Stearic acid	1.5
Aqua ammonia, 26° Be	7
Oxalic acid, hydrated	6
Silica	35
Alcohol	2
Water	49

The amount of ammonia corresponds to an excess of about 1 per cent above what would be present as ammonium stearate and ammonium oxalate. These formulas correspond to a number of products on the market, but that containing about 25 per cent of abrasive is more typical of the average. They are creamy to white liquid suspensions in most cases.

A paste can be prepared if desired by increasing the amount of soap and using soda soap instead of ammonia soap, also keeping the proportion of silica high, as in the following:

	Per Cent
Soda tallow soap	9
Soda ash	1
Silica	30
Water	60

Such a product would have to be made hot and poured into cans while in the molten condition. This water-base paste is totally different from the Putz pomade still used on hot metal. The Putz polish has a grease base of petrolatum, paraffin, or paraffin and mineral oil, which liquifies at the temperature of a steam-boiler exterior. It then has the same effect that ordinary polish has on cold metal.

A liquid recommended by the manufacturer for the cleaning of all metals is substantially a 5 per cent aqueous solution of oxalic acid. This would have only a chemical cleaning effect.

Polish Specifications

THE U. S. Navy Department specification for liquid metal polish states that it "shall consist of a liquid containing a finely divided abrasive suitable for the removal of tarnish from brass, nickel, and other metals, and capable of producing a lasting luster thereon." Specific tests are described which the product must meet to conform with the above definition, as well as to prove that the liquid will be free from caking and does not contain free acids or cyanides. Both of the latter ingredients were used in formulas at one time for their chemical cleaning action. Cyanides are now prohibited because of their toxic nature. The only reference to inflammability in these specifications is a provision that "Each can shall bear the manufacturer's trade label indicating contents and whether inflammable or non-inflammable."

Metal polish for the Navy must have a chemical cleaning action. A standard sulfide stain is produced on a brass plate and a little pool of polish poured on the stain. After a short time the polish is removed by laying a clean cloth over it then whisking the cloth off without rubbing. There should be no sulfide left where the polish made contact. Metal polish for the Navy has to be tested and approved before a bid can be submitted.

The U. S. Army specification for liquid metal polish uses a definition of the material practically identical with that given by the Navy. Acidity and cyanides are likewise prohibited. The abrasive must stay in suspension 24 hours after shaking. In addition the Army specification, unlike that of the Navy, requires that the polish be non-inflammable.

The U. S. Department of Commerce states that metal polish "should not contain cyanides or nitrobenzene and should be free from disagreeable odor." Nitrobenzene (oil of mirbane) has probably been used in the past for its odor value, but it is toxic and is excluded for that reason. Polishes that are to be carried as ship's stores on passenger vessels must have a flash point of 250° F. or over.

Silver Polish

SILVER polishes are sometimes colored pink, no doubt because rouge was once much used as an abrasive, and they often carry an odor of sassafras or of wintergreen. The chief ingredients are a soft abrasive,—diatomaceous earth being used almost exclusively in good silver polishes,—soap and water. Sometimes an alkaline salt is added as soap builder, or a reducing agent such as sodium thiosulfate, or a wetting agent such as glycerine. Addition of an alkaline salt hardens the soap so as to give the desired consistency. A small amount of hard

wax is often added, the idea being that it will give a superficial film which will help prevent future tarnishing. The amount is so small as to be hardly detectable analytically. Tarnish on silver consists of the sulfide rather than the oxide. A thick creamy product has the following composition:

	Per Cent
Diatomaceous earth	20
Tallow soap	7
Soda ash	2
Water	71

Diatomaceous earth is also termed infusorial earth, kieselguhr, and diatomite. It is very light and fluffy as well as very soft.

A loose suspension contains 5 per cent of diatomaceous earth in a 40 per cent solution of alcohol.

A polish may contain more than one alkaline builder:

	Per Cent
Soda tallow soap	4
Sodium metasilicate	1
Soda ash	4
Diatomaceous earth	10
Water	81

The soap in the paste products usually varies from 5 to 8 per cent while the proportion of abrasive averages about 15-20 per cent.

Some manufacturers sell a dry mixed powder similar in composition to the above but without the water. The powder can be used as such on a damp cloth or stirred with water to form a paste. One such powder contains:

	Per Cent
Diatomaceous earth	80
Soda tallow soap	19
Soda ash	1

Impregnated polishing cloths are also sold for cleaning silver. These are usually prepared by treatment with tallow soap and diatomaceous earth dispersed in kerosene. The cloths are squeezed out and excess kerosene allowed to evaporate. The fabric commonly used is canton flannel, a cotton material with a mat. Similar products using silica instead of diatomaceous earth are commonly prepared for use on base metals.

A Federal specification for silver polish covers liquid, paste, and powder forms. The liquid and paste forms "shall consist of finely ground, white, diatomaceous or infusorial earth suitably compounded with a neutral soap." Powdered silver polish "shall consist solely of finely ground, white, diatomaceous or infusorial earth free from adulterants or foreign matter." The liquids and pastes must be free from acids and cyanides. "All types of silver polish shall have good cleansing and polishing properties and shall contain abrasives of such fineness that 100 per cent will pass through a standard No. 200 sieve." Directions for specific tests to confirm these properties are given.

Silver polish is also used on pewter, which is a soft alloy high in tin. It can be used on gold, as all three of these belong in about the same class of hardness. Brass polish should not be used on these and should be labelled in accordance with its real purpose. Too many metal polishes bear on the label "Cleans — polishes brass, copper, gold, silver, pewter, aluminum, nickel, steel, etc." Such claims are out of all reason and indicate that either the manufacturer does not know what his own product is good for, or else he is deliberately trying to mislead. Hotel managers know that an efficient brass polish will damage silver. It is too bad if every housewife is expected to learn the same thing by experience.

Aluminum is relatively soft and therefore easily scratched. A number of polishes based on silica as an abrasive have been tried out for aluminum but are unsatisfactory in that they scratch the surface and do not give a polish. Silica is too hard for aluminum. Steel wool seems to be the most satisfactory cleaner. It also scratches but not on the mass scale that a metal polish would, so that the effect is different and the result reasonably satisfactory. Alkaline materials should be avoided in cleaning aluminum as the metal reacts with alkali.

Stainless steel does not corrode if kept absolutely clean. There are many instances of its corroding badly when this has not been done, as when a "catch-all" metal sieve has been allowed to stand indefinitely in a kitchen sink made of stainless steel. A well-known stainless steel is referred to as "18-8," meaning that it contains 18 per cent of chromium and 8 per cent of nickel. This is an extremely hard alloy which does not scratch readily and is kept clean in much the same way as chromium.

Polishes for base metals are usually packaged in tin cans. Silver polish is frequently packaged in wide-mouthed glass jars. Exceptions are found in both cases. One prominent metal-polish manufacturer packages in a distinctive-shaped glass bottle, and an almost equally prominent silver-polish manufacturer packages in slip-cover cans resembling an overgrown can of shoe polish. Some manufacturers have had trouble from flecks of iron rust which contaminated their liquid metal polish. What has usually happened in a case like that, is that the tin plate of the neck has been corroded by ammonia fumes. The screw part of the can is the weakest point, as the tin plate undergoes severe strain where it is bent to form grooves. In a poor quality of tin plate, the underlying iron becomes exposed and quickly rusts. Fairly heavy plate is therefore necessary, particularly in products containing a large excess of ammonia.

The manufacture of polish for metals is not highly complex or exceedingly simple. A certain amount of technical knowledge is advantageously applied. As in all other enterprises good judgment is desirable, particularly in the claims made on the label. It is quite possible for descriptive material to be both specific and attractive without departing from the truth.

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Packaging Institute Meeting

The Packaging Institute, Inc., through its president, William M. Bristol, Jr., has invited companies in the packaging field to send representatives to its First Annual Meeting to be held October 19-20, at the Edgewater Beach Hotel, Chicago. The Institute which now comprises packaging production, machinery and supplies divisions, will consider the formation of a designers' division.

Soap Builders

(*From Page* 24)

bar, and toilet soaps, to improve their lathering properties.

Sodium metaphosphate can be added to the soap in the crutcher and the quantity added is usually 3 to 5 per cent. It is also used in liquid soaps for shampoos and other purposes to improve the lathering power and to clear the solution. About 3 to 5 per cent is sufficient. It is sometimes found that a certain amount of precipitate is formed when the metaphosphate is added, but if this is filtered off, the liquid soap will remain quite clear. The best method is to add the metaphosphate solution slowly to the shampoo which has first been stirred, and it is preferable to keep the shampoo warm while the addition is being made.

For use in toilet soaps, where the metaphosphate is employed chiefly for its lather-promoting and lime soap *dispersing* properties, a solution may be made up, consisting of two parts of sodium metaphosphate to three of water. If the solution is not to be used at once, the total quantity of water is weighed into a suitable vessel (preferably enamelled) and warmed to 35° C. The whole of the metaphosphate is added fairly rapidly, stirred for a short time and the solution allowed to stand. Stirring may sometimes be continued to facilitate solution, which eventually occurs, accompanied by a rise in temperature. Originally of watery consistency, in which form its addition to toilet soap may arouse some misgivings, the solution thickens up in course of time and acquires rather the appearance of a thin jelly or mucilage. While sodium metaphosphate is dissolving, it precipitates impurities from the water, even iron compounds, which are cautiously siphoned off.

When metaphosphate is intended for immediate use, it is dissolved in warm water, a small quantity being preferably kept back, with constant vigorous stirring. A marked rise in temperature is developed after even a little has been added and slight effervescence also occurs. Gradual addition of metaphosphate to the water in this way with steady stirring may lead to frothing, especially in rather small vessels. But the froth generally subsides rapidly if mixing be interrupted for a moment.

After steadily mixing in the mill, together with a sodium metaphosphate, the soap is transferred to the rollers. It is surprising how the initially somewhat damp soap becomes solid and compact after twice passing through the rollers and scarcely differs in this respect from other soaps of the same fatty acid content. The maximum proportion of metaphosphate in different soaps depends upon the judgment of the soapmaker. Bearing in mind the improvement effected in the soaps, however, quite a high content is generally permitted. According to Krings, many reputable German factories indeed use more than 5 per cent. With this high proportion the soap will naturally possess a somewhat moist appearance in the mixer but a rapid improvement takes place on the rolls. This is believed to be due to the metaphosphate solution solidifying in the soap, owing to the intimate mixing, as is of course the case with certain other soap ingredients.

ANOTHER filling material, quite extensively used in soaps, is starch, usually potato starch. Perhaps the most customary method of incorporating powdered starch as a filling material in soap flakes and milled toilet soaps is that which involves the making up of a paste which is mixed and milled into the soap chips, care being taken to watch the total moisture content, and thus to ensure that the soap mass remains properly workable. Thus potato starch may be made into a paste with an equal quantity of water, a mixture of 24 parts commercial silicate and 2 parts potassium carbonate being then added in sufficient quantity to give a neutral paste.

According to J. S. Sakla, one European method of adding starch consists of making up a composite filler consisting of starch, sugar, water and sodium silicate, this being prepared in a steam-jacketed kettle and resembling a translucent colloid in appearance, the resulting product being allowed to stand for about three hours and then added to the soap in the mill, in the proportion of 10 to 15 per cent. Starch does of course produce a colloidal solution, characterized by a certain limited detergent effect. For use in grained soaps, the following mixture may be recommended: equal parts of a 17 per cent potassium chloride and 12 per cent potassium carbonate solution, thoroughly mixed into a paste with one-quarter to one-third the quantity of potato starch. From 20 to 25 per cent of this paste may eventually be incorporated in the soap mass.

Various grades of methyl cellulose have been recommended of late, as being suitable for addition to soaps, but the chief disadvantage, in certain instances, is that they tend to leave behind them a definite feathery white deposit, an undesirable characteristic that is particularly noticeable in connection with shaving soaps. However, in view of their marked stability, freedom from odor and color, and their swelling and emulsifying properties, these cellulose derivatives are certainly deserving of careful investigation. I therefore append the following few details concerning them:

A colloidal solution of methyl cellulose is readily obtained by pouring boiling water over the compressed blocks of raw material. On cooling, a uniform solution is formed, which is free from lumps, stable in all concentrations and does not ferment, mildew or turn acid. Neither is it destroyed even if frozen. These solutions are completely neutral and resistant to all concentrations of alkali, whether hot or cold, as well as resisting dilute mineral and organic acids at low temperatures. In soap flakes, from 1 to 4 per cent of a methyl cellulose paste has been suggested, the paste consisting of about 8.5 per cent methyl cellulose in boiling water, together with a little potash lye. Another suggestion is as

follows,—100 parts of soap chips, 50 parts of sodium bicarbonate and 6 parts of a 10 per cent methyl cellulose gel. Other formulae have also been published, advocating the use of methyl cellulose in conjunction with sodium silicate and metasilicate, salt, potassium carbonate, etc.

Talc still finds considerable application as a soap filling material, although it is gradually being replaced by the more effective china clays and bentonite, the color of the latter materials being sometimes improved by the simultaneous inclusion of a little zinc oxide or titanium dioxide. Talc itself may either be sifted in during the milling process or incorporated by adding to the hot soap as a suspension in sodium silicate or other liquoring solution. Although the addition of talc tends to give a good smooth cake of soap and permits the inclusion of a higher proportion of water, it can nevertheless be regarded only as an adulterant, lacking in any real detergent value.

That is undoubtedly the prime reason for the increasing use of china clay as a substitute for talc. The work of Weston, Rehbinder and others first opened up the possibilities of colloidal clay as a soap building agent. Such pioneers found that the addition of certain clays caused a marked increase in lathering power, accompanied by an ability to lower the surface tension of water, emulsify dirt and grease, and generally to act as first-rate detergents. Thus a good grade of colloidal clay may be regarded in certain cases as an improver of soap rather than just an added filler, although, if used in excess, it may tend to salt out the soap and destroy its homogeneity. Cornish china clay is the most widely used clay for soapmaking purposes in the United Kingdom. According to W. G. Cass, a bentonite soap made in Europe consists of a naphtha gel of the soap mixed with a water gel of the clay, "the mixture being highly effective as a cleansing agent." Bentonite also finds application in scouring soaps containing pumice, and in mechanics' hand soaps, the latter frequently containing soft soap, abrasives, solvents, bentonite, and sometimes a small proportion of ammonia.

A GOOD deal of ingenuity is often apparent in the substances selected by soapmakers as superfatting agents. Such agents are also used, in many cases, as convenient carriers for special ingredients, ranging from oatmeal or bran to the newer medicaments, e.g. proprietary sulfur compounds. In my opinion, simple mixtures of stearic acid and petrolatum are capable of giving excellent results as superfatting agents in toilet soaps. Lanolin, beeswax, double-bleached montan wax (about 0.5 per cent), cetyl alcohol, trolhetta oil, refined sperm oil,—all these and many more besides find application as superfatting agents. Ekschnam has suggested the following superfatting and neutralizing compound:

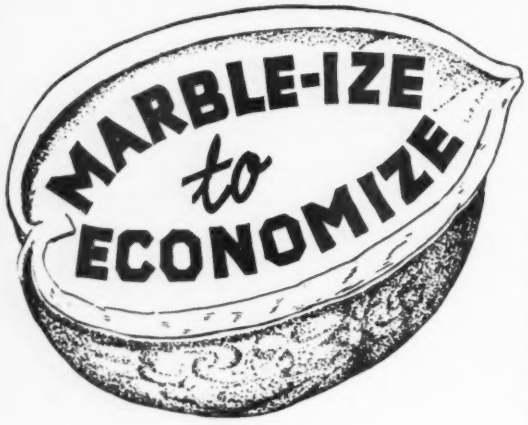
Beeswax	700
Lanolin	3000
Stearic acid	400
Borax	62
Distilled water	3000

The beeswax and half of the lanolin are heated together to about 80° C. The borax is dissolved in the water, which is boiling hot, and the solution stirred into the melted fats and allowed to boil for some time. The mixture is then allowed to cool to about 60° C. with stirring. The stearic acid is melted in another suitable vessel and the balance of the lanolin added to it. This is added to the first mixture at a temperature of 50° C. and stirred. About 2 per cent of the compound may be used as a superfatting agent with soap chips.

I was particularly interested to note that J. Augustin recently recommended the adoption of refined sperm oil (cetiol) as a superfatting material for soaps, in view of the fact that my own experimental work on a laboratory scale had tended to corroborate his recommendation. This specially refined cosmetic-grade oil is pale yellow, stable, and without any objectionable odor. Being compatible with lanolin, stearic acid and petrolatum, it certainly deserves to be tried out in good quality toilet soaps, baby soaps and bath soaps. Incidentally, Augustin gives the following as a typical composition: 1 kilo wool wax, 3 kilos cetiol and 0.5 kilo soap-lecithin.

Consideration should also be given to the potentialities as soap improvers of such modern and "biologically acceptable" substances as cholesterol, lecithin, wool wax and the essential unsaturated fatty acids present in linseed oil, lard, etc. (known commercially as vitamin F). It may be noted that the publicity accorded to the latter product in the U. K. has resulted in an increased general interest in soya bean oil, linseed fatty acids and lard. Whatever may be the attitude of those learned gentlemen who decide upon chemical nomenclature, I and some of my soapmaking friends are definitely of the opinion that the so-called "vitamin F" is a valuable product, particularly when incorporated in shampoos. As to wool wax, which consists of cholesterols and related wool fat alcohols, there is reason to suppose that this might tend to confer beneficial effects upon the skin. Even the refined yellowish-brown and comparatively odorless wool wax is considerably cheaper than medium-pure cholesterol, and it may conveniently be used in milled soaps to the extent of 2.5 to 5 per cent. The application of lecithin in soaps has been widely discussed, but it is of interest to note that special grades have recently been put on the market for soapmaking purposes.

In conclusion, it may prove profitable to glance at some of the more recent patents that refer to methods of filling or improving soaps. Thus, according to Swiss patent 193,-628, "a superfatting agent for making toilet soap is prepared by mixing a hydrogenated fatty acid with an unsaponifiable emulsifier and stabilizing and preserving agents. Buffer salts may also be present. Thus, hydrogenated castor oil fatty acid is mixed with an emulsifying agent such as cetyl alcohol, cholesterol, etc., a preserving or anti-rancidity agent such as triethanolamine, di-



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phenylguanidine, etc., a reducing agent such as Na_2SO_3 and, optionally, a disinfectant or perfume."

British patent 498,850 protects "a soap for shaving and toilet purposes consisting of ordinary soap in which lithium oxide, carbonate, or citrate is incorporated. The corresponding compounds of thorium, magnesium or strontium may also be added. In an example, a superfatted soap containing potassium oleate or stearate is mixed with lithium carbonate, and magnesium carbonate, or thorium oxide." The Provisional Specification describes also the addition of oxides, citrates, or carbonates of zinc or boron.

Soaps for Hard Water are covered by a Lever Brothers' patent (B. P. 492,719): "Alkali orthophosphates are added to soaps whose fatty components are constituted by fatty acids with more than one unsaturated linkage, e.g. linoleic acid, to which may also be added acids with one unsaturated linkage, e.g., oleic acid. The proportion of alkali orthophosphates to fatty acids varies from 1-10 to 1-4.

Ex. 1: Mix together 80 p. of a melted peanut oil soap containing about 63 per cent of fatty acids, 10 p. of disodium phosphate and 10 p. of trisodium phosphate. Atomize to obtain a powder.

Ex. 2: Amalgamate a mixture of 8 p. of peanut oil soap and 20 p. of disodium phosphate to make soap flakes.

Ex. 3: Make a powder by means of 75 p. of melted sunflower oil fatty acids soap, 10 p. of disodium phosphate, 5 p. of peanut oil soap and 10 p. of sodium chloride."

Sodium bicarbonate is preferred by the holder of the German patent 172,357, to silicate, starch or sugar as a filling material for a 60 per cent f.a. mottled soap. British patent 498,682 protects the use in laundry and toilet soap of the "viscid matter naturally contained in seaweed, especially seaweed pods", 12 per cent of this fluid being cited as a filler for yellow soap. And two United States patents refer respectively to the addition of mixed potassium and sodium metaphosphates to liquid soaps and to "a stable liquid soap which contains 40 per cent f.a. prepared from potassium salts of a mixture of unsaturated fatty acids having 12-18 carbon atoms in the molecule. The reaction product of adipic acid on a normal primary aliphatic alcohol of 1 to 4 carbon atoms is added, in the presence of caustic potash, to these potassium salts, in the proportion of about 10 per cent of the latter."

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Pyrethrum for Sand Flies

Laboratory and field tests show that 1 part of concentrated pyrethrum consisting of the extract from 20 pounds of pyrethrum in 1 gallon of refined kerosene,—and 20 parts of lubricating oil (S.A.E. 5) or 1 part of concentrated pyrethrum extract, 6 parts of kerosene and 12 parts of lubricating oil (S.A.E. 10), applied to door and window screens with a brush or rag, will repell or kill salt-marsh sand flies. Spraying rooms with a household fly spray containing pyrethrum extract will kill the flies which have entered the dwelling. J. B. Hull and S. E. Shields. *J. Econ. Entomol.* 32, 93-4 (1939).

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Disinfectant and Bleach

A composition suitable for disinfecting and bleaching consists of magnesium hypohalite and salts of phosphorus acids poor in water such as orthophosphoric acid. Other alkaline-reacting salts may be present. A preferred mixture contains basic magnesium hypochlorite, sodium pyrophosphate and trisodium phosphate. Henkel & Cie. G.m.b.H. German Patent No. 669,905.

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Pyrethrum Extract

For the preparation of a high-percentage pyrethrum extract, coarsely ground flowers are extracted with a low-boiling solvent such as ethylene chloride at a temperature not over 40°C. The solvent is circulated by means of pumps and is finally allowed to stand at rest overnight with the extraction material. Extraction is repeated several times with fresh solvent. The last extract solutions are used for a fresh operation. The first extracts which are high in pyrethrin content are put together and the solvent distilled off in vacuo and recovered at not over 60°C. A thick oily liquid which contains practically all of the pyrethrins originally present in the flowers is dissolved out of the distillation residue by means of a suitable solvent such as a petroleum distillate. In this way the pyrethrins are freed from resinous admixtures. The pyrethrin solution is brought to the concentration desired, according to the use to which it is to be put, then stored for 3 days at 0°C., filtered and put into containers. The final treatment is to separate all resins completely. *Seifensieder-Ztg.* **66,** 472 (1939).

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Esters from Pyrethrin I

The physical constants of several esters of chrysanthemum monocarboxylic acid, the acidic portion of pyrethrin I, are given. The toxic properties are less than for pyrethrins; the lauryl, myristyl, cetyl and diethanolamine esters at a concentration of 0.03 per cent showed a kill of 60.4, 62.0, 65.3 and 63.6 per cent toward *Aphis rumicis* as compared to 70 per cent for pyrethrins at the same concentration. The esters did not produce the typical effect on the cockroach. Except for the furfuryl and vanillin esters, the compounds did not decompose or lose toxicity in 6 months. Boyce Thompson Inst. 10, 143-53 (1939).

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Insecticidal Values

A study of the various methods for evaluating derris and cube roots leads to the conclusion that by making use of colorimetric procedures and making a determination of rotenone by the usual method, it is possible to obtain approximate values for deguelin and toxicarol. The Goodhue modification of the Gross and Smith color test gives an estimate of the insecticidal value against houseflies. The Meyer color test gives a rough idea of the total materials present of the rotenone type. Howard A. Jones, *Ind. Eng. Chemistry*, Anal. Ed., **11,** 429-31 (1939).

News.....

NAIDM Winter Meeting

The Silver Anniversary Meeting of the National Association of Insecticide and Disinfectant Manufacturers will be held at the Mayflower Hotel, Washington, D. C., on Monday and Tuesday, December 4th and 5th, 1939. The meeting marks the completion of twenty-five years active service of the Association, which was formed in Washington in 1914. A number of prominent government officials are expected to be present. The general convention committee is headed by W. J. Zick, Stanco, Inc., New York; entertainment committee by James Lovell, American Can Co., Baltimore; financial arrangements by John Powell, John Powell & Co., New York, and program by C. L. Weirich, C. B. Dolge Co., Westport, Conn. The regular sessions of the convention will be preceded by a meeting of the board of governors on December 3. The board will meet in New York prior to the convention on October 9th.

White Is Democratic Candidate

Dr. Robert C. White of Robert C. White Co., Philadelphia, long active in the National Association of Insecticide and Disinfectant Manufacturers and now serving as controller of the city of Philadelphia was chosen as the Democratic candidate for mayor in the recent Philadelphia primary election. He will be opposed in the general election by former Judge Robert E. Lamberton of the Common Pleas Court, who is running on the Republican ticket.

Jones on McCormick Board

Lester W. Jones, director of purchases for McCormick & Co., Baltimore, and well-known in the household products field, has been elected a member of the Board of Directors of that company, according to an announcement by Charles P. McCormick, president. Mr. Jones has been associated with McCormick & Co. for the past eight years and has been in charge of purchasing since January, 1933. He was the organizer of the present centralized

Lester W. Jones

purchasing department of the company. Prior to his connection with McCormick, he was associated with E. J. Walter Co., Baltimore merchandise brokers. He was formerly chairman of the Junior Board of Executives. At present he is also a director of the McCormick Sales Co. and the McCormick Warehouse Co. Mr. Jones was born in Baltimore in 1902, but lived in Muncie, Indiana, for many years, returning to Baltimore at the start of his business career. He is a graduate of the Baltimore Business College.

Wants Insecticide Agency

A firm in Bogota, Colombia, is interested in establishing an agency for the sale of American manufactured insecticides and cleansing powders. Further details may be had by making application to the U. S. Bureau of Foreign and Domestic Commerce referring to File No. 3690.

Northwest Sanitary Moves

Northwest Sanitary Supply Co., distributor of soaps, cleaning compounds and janitor supplies, St. Paul, Minn., has moved into new and larger quarters in its own newly constructed building at 1845 University Avenue. J. Carselle is the owner of the company.

C. L. Weirich's Mother Dies

Mrs. Louise M. Weirich, mother of Clarence L. Weirich, C. B. Dolge Co., died on September 12. Mr. Weirich is a member of the board of directors of the National Association of Insecticide and Disinfectant Manufacturers.

Wants Insecticide Agency

A firm in Montevideo, Uruguay, has written to *Soap*, stating that it would like to establish an agency there for the sale of American insecticides. The firm, which has been in that type of business for several years, states that Germany has been the largest supplier of insecticide materials, but as a result of the present European war, it is thought that Germany will lose this market and that United States goods will replace the German supplies. The firm is I.C.I.A.D., Maldonado 1691, U.T.E. 18388, Montevideo, Uruguay.

Black Flag Bought by Boyle

The A. S. Boyle Co., Jersey City, subsidiary of American Home Products Co. has just acquired the trademarks, goodwill, plant and equipment of the Black Flag Company of Baltimore. SOAP is advised by Walter Silbersack, Boyle president. This puts one of the oldest names in the insecticide field into the same organization with "Old English Floor Wax," "3-In-Oil" and "Plastic Wood." Definite sales plans have not as yet been worked out. Mr. Silbersack states, but a vigorous advertising campaign is planned for next season.

Floor Wax Booklet

Franklin Research Co., Philadelphia, has just issued a booklet entitled "Yes, They Look Alike," which describes in full the company's "Rubber Gloss 'aerated' Wax." Several charts are contained in the booklet, comparing this wax with other wax products.

Automobile Insurance Booklet

National Electrical Manufacturers Association, New York, has issued a comprehensive bulletin on automobile non-ownership liabilities, which may arise through the use, in connection with the employer's business, of automobiles he does not own. It tells how the hazards involved may be recognized and to what extent they may be reduced or eliminated, also what protections are available. Copies are available.

New Chemical Dictionary

Standard Chemical & Technical Dictionary by H. Bennett, published by The Chemical Publishing Co., New York. Contains 638 pages (6 x 9 inches). Price, $10.00. A condensed technical word book for students, writers, technicians, engineers, scientists and all others who need assistance in keeping up with new chemical, physical, mathematical, engineering and technical words of expression. It is a compilation covering industrial products, chemicals and trade names, abbreviations and contractions, as well as the symbols used in mathematics, chemistry, thermodynamics, pharmacy, etc. A special section is devoted to the explanation and proper naming of the organic compounds, the nomenclature being stated clearly. Complete cross references are used and a standard system of alphabetizing simplifies the locating of any subject.

Termite Control Stipulation

Teriteol Co., manufacturer of a termite eradicator, recently signed a stipulation with the Federal Trade Commission to stop representing all new lumber as being infested with termites, and that 98 per cent of buildings have termites in them. The company will also discontinue claims that only they can insure against termite deterioration or destruction, and can supply effective termite treating work.

Bodebender Retires

William Bodebender, for many years manager of the New Orleans office of Fritzsche Bros., Inc., New York, has recently retired due to ill health. He will be succeeded by N. D. Rockafellow, who has been assisting Mr. Bodebender for the past few years.

Richards Joins Vestal

Carl Richards, formerly advertising manager of James F. Ballard, Inc., and Carradine Hat Co., has joined the advertising department of Vestal Chemical Laboratories, St. Louis, as divisional advertising manager.

Jesse Gutmann Dies

Jesse Gutmann, vice-president, Ferdinand Gutmann & Co., Brooklyn closures, died September 1st.

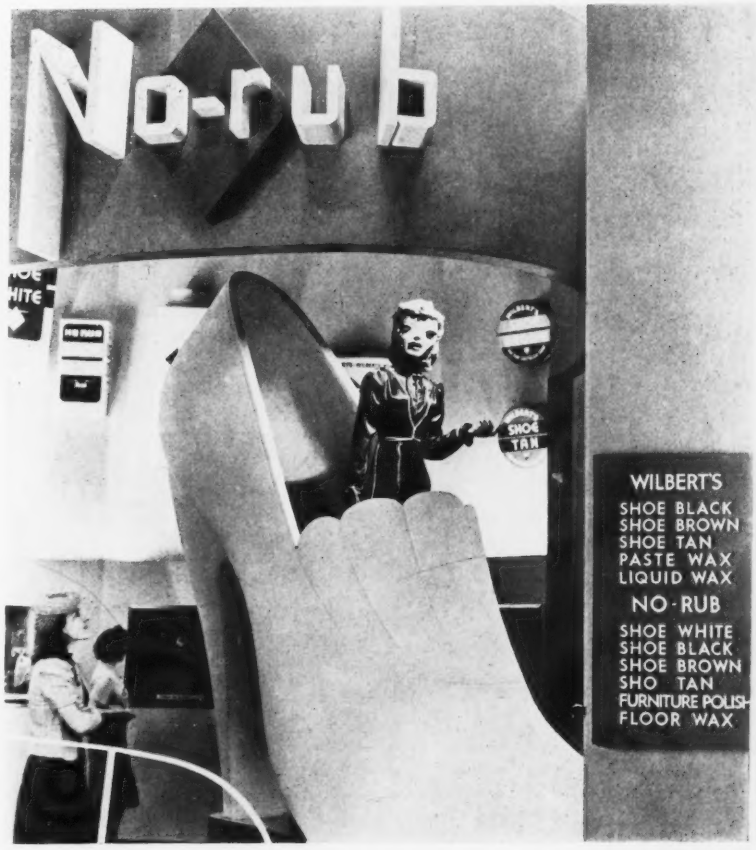
Report Vick Buying Baldwin

Negotiations for the purchase of Baldwin Laboratories, Saegertown, Pa., makers of "Dwin" insecticide, "Dwinex" floor wax and other chemical specialties, by Vick Chemical Co., Greensboro, N. C., are reported in Saegertown newspapers. The report of the proposed purchase could not be confirmed at the New York office of the Vick organization.

New Synthetic Wax Booklet

The Beacon Co., Boston, has recently published a new booklet containing information on various synthetic waxes. It is entitled "Sixty New Synthetic Waxes." Copies are available.

The exhibit of Wilbert Products Co. at the New York World's Fair substitutes for "The Old Woman Who Lived In a Shoe" a modern "Young Redhead." She lives in a size 500, giant white shoe, 12½ feet high, and a prominent feature of the Wilbert display in the Fair's Food Building No. 2. In the interior of the exhibit are six dioramas in which the young lady again is the central character. She is shown in several scenes, appropriately enough, using various Wilbert products. Design by Egmont Arens.



New Canadian Pest Control Act

AN Act, entitled "Pest Control Products Act" was recently passed by the Canadian Parliament, and is now in effect, replacing the "Agricultural Pests' Control Act of 1927." The old Act applied only to products for the control of agricultural pests, while the new Act applies in addition, to products for the control of household pests, pests affecting industry, internal parasites in livestock and poultry, and adjuvant materials such as stickers, spreaders, emulsifiers, etc.

Under the new Act, registration of pest control products is obligatory, and applications for registration of any brand must be accompanied by a $20 fee as in the older Act. A fee of $5 is charged for renewal of registration. If the registration is obtained by a non-resident in Canada, his appointed agent or representative in Canada must be responsible for compliance with the provisions of the Act.

According to the regulations approved under the new Act, any claim made in advertising, as to the purpose or effectiveness of any pest control product, constitutes a guarantee for the product, and such guarantee is liable to substantiation by biological test.

Relating to the strength of some products, the regulations state that chlorine disinfectants must contain at least 12 per cent available chlorine when in powder form, or 3 per cent when in liquid form. Coal tar disinfectants and dips, including phenol, cresol and other such disinfectants, derivatives of coal tar, must have an F. D. A. phenol coefficient of at least 4, except that disinfectant powders, the active substance of which is derived from coal tar and for use solely without dilution, must have a phenol coefficient of at least 2.

Fly spray products must have an effect on house-flies, when used according to directions of a knock-down of at least 90 per cent in ten minutes and a kill of at least 75 per cent in twenty-four hours, under the Peet-Grady method of test. The oil base, carrier or distributor of fly sprays for *household use* must be of a highly volatile and non-staining material, and must have a flash-point of not less than 125° F. (closed cup test). The oil base, carrier or distributor of fly sprays for *live stock* must be an oil with a viscosity between 40 and 55 seconds (S. U. at 100° F.), and an unsulfonatable content of at least 90 per cent. Also, live stock fly sprays shall be so formulated that when used according to directions, they will not burn or blister the skin of animals, remove or cause loss of hair, mat or discolor hair, nauseate animals or interfere with the healing of cuts or wounds, nor taint the milk of the animals sprayed.

The new regulations further provide that the maximum content of water soluble arsenic allowed in pest control products for use on foliage, calculated on a dry basis and as elemental arsenic, must not exceed .5 per cent in arsenate of lead, 1 per cent in calcium arsenate, 1.25 per cent in paris green and .3 per cent in all other products containing arsenic.

The new law states that broken or open packages containing products poisonous to humans must not be stored or their contents served to customers in the same room where human foods are stored or served. Every package containing 25 per cent by weight of sodium chlorate or other chlorate must be of metal or glass, or other non-combustible and durable material. Packages used for thallium or any of its compounds or mixtures must be approved by the Minister of Pensions and National Health, while packages used for rotenone or pyrethrin products must be of opaque material.

Pest control products containing poisonous amounts of mineral acids, oxalic acid, alkalies, antimony compounds, etc. must be labeled "poison" with the skull and crossbones symbol, the words in capitals "Call a Doctor in Case of Accident" and the antidote as approved by the Department of Pensions and National Health.

A sample label regarded as correct under the new Act is shown below.

Bolivia Polish Sales Up

Sales of metal polishes in Bolivia are steadily expanding, according to the American Consulate at La Paz. Although there are some domestic polishes, most of the Bolivian requirements are imported due to the poor quality of the domestic product. The principal foreign brands are of American, German and British origin.

2 oz. net

X I T RAT POISON

Registration No. 222

(PEST CONTROL PRODUCTS ACT)

CALL A DOCTOR IN CASE OF ACCIDENT

Antidote .....

Skull and Cross Bones

.....

.....

.....

.....

Poison

Guarantee: Strychnine .3 per cent

Manufactured by the

RODENT SPECIALTY COMPANY

Ratville, Canada

Natl. Pest Control Association Meets in N. Y. Oct. 23-25

THE National Pest Control Association will hold its seventh annual convention at the Hotel Pennsylvania, New York, on October 23-25. Over 400 persons are expected to be in attendance, which will make it the largest gathering in the history of the association. A full program, consisting of speakers, clinics, booth exhibits, business sessions and entertainment, has been planned. It has been announced that the Hon. Fiorello LaGuardia mayor of New York, will be among the speakers. Clinics on questions raised at the various sessions will be conducted by authorities in each field, and thirty-seven booths have been reserved for manufacturers and suppliers for the pest control industry, who will exhibit the latest developments in their particular products. A varied entertainment program includes a dinner-performance at the International Casino, a show at Radio City Music Hall and the annual banquet at the Hotel Pennsylvania.

The convention will be called to order on Monday morning at 9:30 by P. Calvert Cissel, American Disinfectant Co., Washington, D. C., chairman of the convention committee. A formal welcome on the part of New York City is to be made by the Hon. Fiorello LaGuardia and the annual president's address will be given by H. G. Irving Sameth. The main talks of the first morning will be those of Dr. John Oberwager, chairman of the fumigant board, Dept. of Health, New York, speaking on "Relation of Health Department to Pest Control Industry" and of Dr. E. A. Back, senior entomologist, Bureau of Entomology and Plant Quarantine, Washington, D. C., who will speak on "Interesting Household Pest Control Problems." Reports of the secretary, treasurer and various committees will also be given on Monday morning.

The Monday afternoon sessions will open with an address by

H. G. Irving Sameth

Dr. C. L. Williams, assistant surgeon general, United States Public Health Service, on "Analysis of Accidents and Precautions to be Observed." Following this, a "Fumigation Clinic" will be conducted by Bartlett W. Eldridge, which will include a question and answer period. Manufacturers of fumigants and equipment will be given an opportunity to explain their products at this time. In the latter part of the afternoon a dual feature will combine a roving clinic on business routine and office management and a visit to booth exhibitors. "Stations" have been provided where interesting data, forms, and printed mater on business procedure will be displayed.

The second day's convention sessions will be devoted to talks and discussions on pests and pest control problems. Prof. J. J. Davis, chief in entomology, Purdue University, will preside over a clinic on "Miscellaneous and Common Household Pests" in which the following will take part in a question and answer discussion: Prof. W. P. Flint, chief entomologist, Illinois Natural History Survey; Dr. E. A. Back; Dr. T. J. Headlee, New Jersey Agricultural Experiment Station; W. E. McCauley, entomologist, Illinois Natural History Survey; Harlem B. Ives; Dr. A. Weed, John Powell & Co., New York; and Dr. Charles E. Palm, head of the department of entomology, Cornell University. During the clinic a talk on "The Modern Chemical Arsenal and What It Means In the Fight Against Insects" will be made by Dr. M. B. Leonard, in charge of pest control laboratories, Du Pont Exhibit, New York World's Fair. Another clinic scheduled for Tuesday morning will be on "Rats and Mice," the various divisions of the clinic being conducted by the following men: "Bureau of Biological Survey," Dorr B. Green, chief, division of Predator and Rodent Control, U. S. Bureau of Biological Survey; "Control of Rats and House Mice," Donald A. Spencer, of the control methods laboratory, U. S. Dept. of Interior; and "Folklore About Rats and Mice," Ernest M. Mills, Bureau of Biological Survey. Separating the two morning clinics will be an address by Dr. Lee Strong, chief, U. S. Bureau of Entomology and Plant Quarantine.

On Tuesday afternoon, Dr. R. C. Roark, senior entomologist, insecticide division, U. S. Bureau of Entomology and Plant Quarantine, will present a paper on the "Importance of Chemistry in Pest Control," followed by a "Chemicals and Formulae" clinic. Under this clinic, C. S. Corl, entomologist, Allaire, Woodward Co., Peoria, Ill., will speak on "What the Pest Control Operator Should Know About Pyrethrum"; George L. Hockenyos, Sentinel Insect Control Laboratory, Springfield, Ill., will talk on "Diamylphenol," and Prof. F. L. Campbell, professor of entomology, Ohio State University, will speak on the "Toxicity of Phosphorus to Cockroaches." The afternon sessions will then end with the presentation of papers on "The Natural Better Business Bureau Slant on Our Industry" by A. E. Backman, National Better Business Bureau, and on "Co-operation Between Science and Pest Control Industry" by Dr. W. C. Kane, head of the department

of entomology, College of Agriculture of University of New Hampshire.

On the third and final morning of the convention, new officers and directors for 1939-40 will be elected. In the afternoon, Ira P. MacNair, secretary of the National Association of Insecticide and Disinfectant Manufacturers, will speak on "Picking Up the Trend Since the Cleveland Convention in 1936," and Dr. Thomas E. Snyder, senior entomologist, forest insect investigations, U. S. Bureau of Entomology, will speak on "Termite Interview." The subject of termites will be continued with a clinic which will include motion pictures.

Entertainment for the three evenings consists of a dinner and show at the International Casino on Monday evening, a performance at Radio City Music Hall on Tuesday night, and the annual banquet in the Grand Ball Room of the Hotel Pennsylvania on the final evening. In addition to this, shopping tours and a boat ride around Manhattan have been planned for the ladies.

Information regarding the convention, transportation rates, hotel reservations, etc., may be obtained from William O. Buettner, secretary, 3019 Ft. Hamilton Parkway, Brooklyn.

Bedbug Control

(*From Page 92*)

into inaccessible places where bedbugs are likely to be found. In order to gain this advantage and at the same time retain the ovicidal value of the kerosene oil, the two may sometimes be blended with satisfactory results.

Aside from destroying bedbug life, one of the functions of a good bedbug insecticide should be to deodorize or cover the very distinct and disagreeable odor which is characteristic of a moderate to heavy infestation of these insects. The bedbug is equipped with a pair of stink glands which exude an oily, ill-smelling liquid which presumably functions as a means of protection from other insects. When the bugs are present in large numbers, this odor can be very persistent and disagreeable.

With this in mind, it is evident that the perfuming problem in bedbug liquid is not merely one of masking the petroleum oil base of the spray, but also one of neutralizing the bug odor which pervades a room. This can generally be accomplished by the use of essential oils with relatively high boiling points.

In connection with bedbug sprays, it should be remembered that even the best insecticide is valueless unless it is applied correctly. This maxim is especially true in the case of the bedbug because of its resistance to adverse conditions and ability to hide itself in almost inaccessible places.

Treatment of a bed or a single bedroom will seldom give adequate control unless all of the surrounding rooms and premises are likewise treated. This treatment must of course be very detailed and thorough, even to the point of spraying between the walls, in door locks, in electric outlet boxes, and similar hard-to-get-at places.

Spraying when the temperature in the room is 80 degrees F. or over has likewise been shown to give better results. This is due to the greater activity of the insects at this temperature and also the greater diffusion of the spray vapors which tend to drive the insects from their hiding places.

In many sections of the country, particularly in the middle west, bedbugs are primary pests of poultry. In all cases where the possibility of continued reinfestation from poultry houses exists, it should of course be checked before treatment.

Nymoc Products Move

Nymoc Products Co., chemical specialties, Toronto, has recently moved to new and larger quarters at 68 Lombard Street.

Monsanto War Article

That American industrialists today do not want war may be concluded from an article appearing in the *Monsanto Magazine*, written by Charles Belknap, executive vice-president of Monsanto Chemical Co., St. Louis, and formerly World War chief of the Naval Overseas Transportation Service. The article "War Means Years of Blackouts" presents graphic illustrations showing that peace profits are greater than war profits and that the chemical industry is far less a war industry than some of the industries we commonly associate with peace. Reprints are available.

Rotenone Imports Increase

Imports of rotenone bearing roots into the United States during the first six months of this year showed a substantial increase over the whole year of 1938. Total imports of crude derris root for the first half of 1939 amounted to 1,328,520 lbs., valued at $159,391 as compared to 742,661 lbs., valued at $93,157 for the entire year of 1938. Cube imports for the 1939 first half, totaled 1,089,260 lbs., valued at $86,595 as compared to 590,854 lbs., worth $43,823 for the whole year 1938.

Foster D. Snell Expands

Foster D. Snell, Inc., Brooklyn, has recently expanded and modernized its bacteriological laboratory. New equipment has been added to speed up work on F. D. A. determinations and for research. Samuel S. Epstein is in charge of the department.

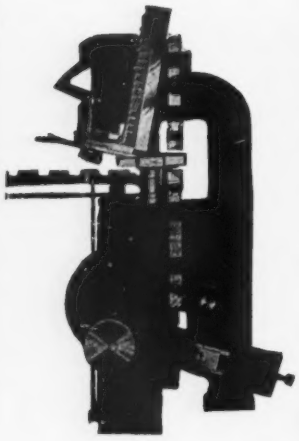
July Insecticide Exports

Exports of liquid insecticides from the United States in July of this year amounted to 610,000 lbs. valued at $177,717, according to the U. S. Bureau of Foreign and Domestic Commerce. Exports of powdered insecticides for the same month totaled 37,338 lbs. worth $9,787, while exports of disinfectants amounted to 157,876 lbs. valued at $19,730.

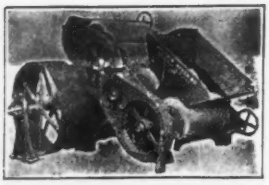
George Gauthier Dies

George A. Gauthier, president of Safloor Company, floor cleaning compounds, Danbury, Conn., died suddenly August 1st. He was formerly an executive of the Remington Arms Co.

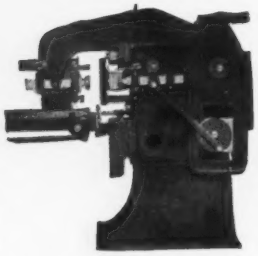
Special Offerings of SOAP MACHINERY *Completely Rebuilt!*



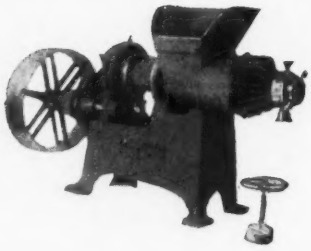
Small size fully automatic Jones toilet soap press. Capacity 150 to 200 small cakes per minute. A real buy at an attractively low price. Has been completely rebuilt in our own shops.



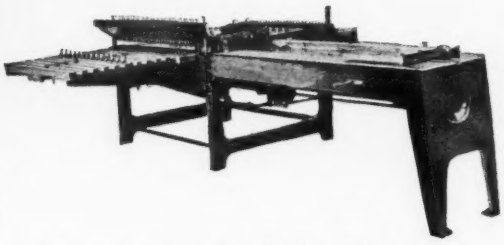
H-A SOAP MILL
This 4-roll granite toilet soap mill is in A-1 shape. Latest and largest size rolls.



4 JONES AUTOMATIC combination laundry and toilet soap presses. All complete and in perfect condition.



Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally guaranteed.



2 Automatic Power Soap Cutting Tables.

INVESTIGATE THESE SPECIAL BARGAINS

•

Proctor & Schwartz 2-Fan Soap Chip Dryer with 36" Roll. Complete. Very fine condition.

Johnson Automatic Soap Chip Filling, Weighing and Sealing Machines for 2 lb. and 5 lb. Packages guaranteed in perfect condition.

ADDITIONAL REBUILT SOAP MACHINERY

All used equipment rebuilt in our own shops and guaranteed first class condition.

H-A, 1500, 3000, 4000, 5000 lbs. capacity. Steam Jacketed Crutchers.
Dopp Steam Jacketed Crutchers, 1000, 1200, 1500 lbs. and 800 gals. capacity.
Ralston Automatic Soap Presses.
Scouring Soap Presses.
Empire State, Dopp & Crosby Foot Presses.
2, 3, 4, 5 and 6 roll Granite Toilet Soap Mills.
H-A 4 and 5 roll Steel Mills.
H-A Automatic and Hand-Power slabbers.
Proctor & Schwartz Bar Soap Dryers.
Blanchard No. 10-A and No. 14 Soap Powder Mills.
J. H. Day Jaw Soap Crusher.
H-A 6, 8 and 10 inch Single Screw Plodders.
Allbright-Nell 10 inch Plodders.
Filling and Weighing Machine for Flakes, Powders, etc.
Steel Soap frames, all sizes.
Steam Jacketed Soap Remelters.
Automatic Soap Wrapping Machines.
Glycerin Evaporators, Pumps.
Sperry Cast Iron Square Filter Presses, 10, 12, 18, 24, 30 and 36 inch.
Perrin 18 inch Filter Press with Jacketed Plates.
Gedge-Gray Mixers, 25 to 6000 lbs. capacity, with and without Sifter Tops.
Day Grinding and Sifting Machinery.
Schultz-O'Neill Mills.
Day Pony Mixers.
Gardiner Sifter and Mixer.
Proctor & Schwartz large roll Soap Chip Dryers complete.
Doll Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.
Day Talcum Powder Mixers.
All types and sizes—Tanks and Kettles.
Ralston and H-A Automatic Cutting Tables.
Soap Dies for Foot and Automatic Presses.
Broughton Soap Powder Mixers.
Williams Crutcher and Pulverizer.
National Filling and Weighing Machines.

Send us a list of your surplus equipment—
we buy separate units or complete plants.

NEWMAN TALLOW & SOAP MACHINERY COMPANY

1051 WEST 35th STREET, CHICAGO — Phone Yards 3665-3666

Our Forty Years Soap Experience Can Help Solve Your Problems

Classified Advertising

Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 254 West 31st St., New York.

Positions Wanted

Salesman: Desires connection with manufacturer of wax and allied products. Well known for over 15 years in Manhattan and Bronx among hardware, house furnishing and grocery jobbers. Address Box No. 680, care of *Soap*.

Soap Maker and Chemist with long experience in the manufacture of all kinds and grades of soaps and soap products. Pacific coast preferred. Address Box No. 687, care of *Soap*.

Sales Representative — Capable and experienced salesman would like to represent out-of-town manufacturers on bulk products calling on jobbers and manufacturers in Metropolitan district. Address Box No. 683, care of *Soap*.

Soapmaker, Chemist, Perfumer; in profitable laundry and toilet soaps; glycerine production. Do research work; teach processes; improve plants. Correspondence English or Spanish. Address Box No. 684, care of *Soap*.

Chemist—Man with twelve years' experience in the insecticide field, chiefly in manufacturing and formulation, desires position with insecticide manufacturer. Good record, best references. Address Box No. 671, care of *Soap*.

Sales Manager; well acquainted with janitor and sanitary supply field, at present employed, open for a position in the middle west. Gentile, 40, qualified to handle existing sales organization or starting new sales division for manufacturer or distributor. Address Box No. 686, care of *Soap*.

In two years I developed a substantial industrial soap business among Chicago's largest manufacturers. Desire more lucrative connection. University Graduate. Address Box No. 670, care of *Soap*.

Positions Open

Distributors for high grade cleaning specialties in packages and bottles. Investment necessary. Address Box No. 681, care of *Soap*.

Soap Maker—Man experienced in potash soaps, scrub soaps and similar specialties. Prefer man of middle age who can take full charge of department for established manufacturer. Give full details, salary, experience, etc. Address Box No. 678, care of *Soap*.

Distributor—manufacturer wants distributors for liquid wax, quality product, lowest price and a venetian blind cleaner that leaves a protective film. Address Box No. 689, care of *Soap*.

Salesmen or Distributors: Manufacturer in Buffalo wants experienced salesmen or distributors for private brand toilet soaps, liquid soap, etc. with following among jobbers, hotels, institutions, schools, etc. Permanent commission contract. Address Box No. 688, care of *Soap*.

State Sales Managers: Established manufacturer of extra high quality floor wax and allied products wants one experienced man for each Atlantic Coast state and for most states west of Mississippi. Must have car and be experienced in floor finish sales. We are firmly entrenched in Mid-West and wish to expand and need capable representation. Protected State Manager contracts issued. Write to Brulin & Company, 2939 Columbia Ave., Indianapolis, Ind.

Miscellaneous

Soap Maker, chemist with some capital wants to make contact with existing organization. Thoroughly experienced in the manufacture of all kinds of soaps, soap powders, and cosmetics. Address Box No. 685, care of *Soap*.

Floor Brushes—We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

Complete Soap Plant Equipment for Sale: Proctor soap chip dryer; automatic soap press; wrapping machine; 4 roll stone mills; foot press; plodders 6", 8", 10"; soap boiling kettles; 6 knife chipper; two-way cutting table; frames; filter presses; crutchers; mixers; boilers. Stein Equipment Corp., 426 Broome St., New York City.

For Sale: Used equipment for Hydrogenation Plant, capacity 25,000 lbs. oil per charge; Catalyst Reducing Plant; Steam-Iron Hydrogen Generating Plant capacity 1,750 cu. ft. per hour; Shortening Plant. Wurster & Sanger, Inc., 5201 S. Kenwood Avenue, Chicago, Illinois.

Cincinnati firm covering part of Ohio would be interested in representing producers of oils or other raw materials used by soap manufacturers. Address Box No. 682, care of *Soap*.

Raw Materials and Equipment

NOTE: This is a classified list of the companies which advertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index of Advertisements, on page 130 for page numbers. *"Say you saw it in SOAP."*

ALKALIES

American Cyanamid & Chemical Corp.
John A. Chew, Inc.
Columbia Alkali Co.
Diamond Alkali Co.
Dow Chemical Co.
Eastern Industries
Hooker Electrochemical Co.
Innis, Speiden & Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.
Warner Chemical Co.
Welch, Holme & Clark Co.

BULK AND PRIVATE BRAND PRODUCTS

Associated Chemists, Inc. (Insecticides)
Baird & McGuire, Inc. (Disinfectants)
Buckingham Wax Corp. (Wax Products)
Candy & Co. (Floor Products)
Chemical Supply Co. (Disinfectants, etc.)
Clifton Chemical Co. (Sanitary Supplies)
Cole Chemical Corp. (Sanitary Supplies)
Davies-Young Soap Co. (Potash Soaps)
Empire Chem. Prods. Co. (Sanitary Supplies)
Federal Varnish Co. (Floor Products)
Fuld Bros. (Sanitary Supplies)
James Good, Inc. (Sanitary Supplies)
Harley Soap Co. (Soap Specialties)
Higley Chemical Co. (Floor Seal)
Hockwald Chemical Co. (Sanitary Supplies)
Hysan Products Co. (Sanitary Supplies)
Koppers Co. (Disinfectants)
Kranich Soap Co. (Potash Soaps)
Milroy Products, Inc. (Cleaners and Detergents)
John Opitz, Inc. (Insecticides)
Peck's Products Co. (Sanitary Supplies)
Philadelphia Quartz Co. (Detergents)
Prominent Specialty Co. (Floor Products)
Geo. A. Schmidt & Co. (Soaps)
Shawmut Specialty Co. (Wax Products)
Sweeping Compound Mfrs. Co. (Sweeping Compound)
Twin City Shellac Co. (Wax Products)
Uncle Sam Chemical Co. (Sanitary Supplies)
T. F. Washburn Co. (Floor Products)
White Tar Co. (Disinfectants, etc.)
Windsor Wax Co. (Wax Products)

CHEMICALS

American-British Chemical Supplies
American Cyanamid & Chemical Corp.
John A. Chew, Inc.
Columbia Alkali Co.
Diamond Alkali Co.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Eastern Industries
General Chemical Co.
Hooker Electrochemical Co.
Industrial Chemical Sales Div.
Innis, Speiden & Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
Solvay Sales Corp.
Standard Silicate Co.
Jos. Turner & Co.
Victor Chemical Works
Warner Chemical Co.
Welch, Holme & Clark Co.

COAL TAR RAW MATERIALS

(Cresylic Acid, Tar Acid Oil, etc.)

American-British Chemical Supplies
American Cyanamid & Chemical Corp.
Baird & McGuire, Inc.
Barrett Co.
Innis, Speiden & Co.
Koppers Co.
Monsanto Chemical Co.
Pittsburgh Coal Carbonization Co.
Reilly Tar & Chemical Co.
White Tar Co.

COLORS

Fezandie & Sperrle
Pylam Products Co.

CONTAINERS AND CLOSURES

American Can Co. (Tin Cans and Steel Pails)
Anchor-Hocking Glass Corp. (Closures and Bottles)
Continental Can Co. (Tin Cans)
National Can Co. (Cans)
Owens-Illinois Glass Co. (Bottles and Closures)
Wilson & Bennett Mfg. Co. (Steel Pails and Drums)

DEODORIZING BLOCK HOLDERS

Clifton Chemical Co.
Fuld Bros.
Hysan Products Co.
National Sanitary Chemical Co.

INSECTICIDES, SYNTHETIC

American Cyanamid & Chemical Corp.
Associated Chemists, Inc.
Rohm & Haas Co.
U. S. Industrial Chemical Co.
Whitmire Research Corp.

MACHINERY

Anthony J. Fries (Soap Dies)
Houchin Machinery Co. (Soap Machinery)
Huber Machine Co. (Soap Machinery)
International Nickel Co. (Monel Metal)
R. A. Jones & Co. (Automatic Soap Presses and Cartoning Machinery)
Karl Kiefer Machine Co. (Filling Machinery)
Koppers Company (Coal Tar Plants, Power Plants, Valves, Castings, Pipe, Tanks)
Mixing Equipment Co. (Tanks, Mixers)
Proctor & Schwartz (Dryers)
C. G. Sargent's Sons Corp. (Dryers)
Sprout, Waldron & Co. (Mixing, Conveying, etc.)
Stokes & Smith Co. (Pkg. Machy.)

Raw Material and Equipment Guide

NOTE: This is a classified list of the companies whichadvertise regularly in SOAP. It will aid you in locating advertisements of raw materials, bulk and private brand products, equipment, packaging materials, etc., in which you are particularly interested. Refer to the Index of Advertisements, on page 130 for page numbers. *"Say you saw it in SOAP."*

MACHINERY, USED

Consolidated Products Co.
Newman Tallow & Soap Machinery Co.

MISCELLANEOUS

American Colloid Co. (Bentonite)
American Standard Mfg. Co. (Wax Applicator)
Anchor-Hocking Glass Corp. (Metal Caps)
Barnsdall Tripoli Co. (Pumice—Tripoli)
Dow Chemical Co. (Germicides, Agricultural Insecticides, Fumigants)
Filtrol Corp. (Purifying and Decolorizing Clay)
General Petroleum Corp. (Naphthenic Acids)
Hercules Powder Co. (Pine Oil and Rosin)
Industrial Chemical Sales Div. (Decol. carbon, Chalk)
Innis, Speiden & Co. (Fumigants)
Koppers Company (Coal, Coke, Roofing Materials)
Lenape Trading Co. (Waxes)
Pennsylvania Refining Co. (White Oils)
Pylam Products Co. (Lathering Agent)
S. Schwabacher & Co. (Naphthenic Soaps, White Mineral Oils)
Socony-Vacuum Oil Co. (Naphthenic Acids)
U. S. Industrial Alcohol Co. (Alcohol)
U. S. Industrial Chemical Co. (Solvents)

OILS, FATS, AND FATTY ACIDS

Eastern Industries
Independent Mfg. Co.
Industrial Chemical Sales Div.
Leghorn Trading Co.
Murray Oil Products Co.
Newman Tallow & Soap Machinery Co.
Orbis Products Corp. (Stearic Acid)
Wecoline Products Co.
Welch, Holme & Clark Co.

PARADICHLORBENZENE

John A. Chew, Inc.
Dow Chemical Co.
E. I. du Pont de Nemours & Co.
Hooker Electrochemical Co.
Monsanto Chemical Co.
Niagara Alkali Co.
Solvay Sales Corp.
Jos. Turner & Co.

PERFUMING MATERIALS

American-British Chemical Supplies
Aromatic Products, Inc.
Compagnie Parento
Dodge & Olcott Co.
Dow Chemical Co.
P. R. Dreyer, Inc.
E. I. Du Pont de Nemours & Co.
Felton Chemical Corp.
Firmenich & Co.
Fritzsche Brothers, Inc.
General Drug Co.
Givaudan-Delawanna, Inc.
Magnus, Mabee & Reynard, Inc.
Monsanto Chemical Co.
Norda Essential Oil & Chemical Co.
Orbis Products Corp.
Ungerer & Co.
Van Ameringen-Haebler, Inc.

PETROLEUM PRODUCTS

Deodorized Insecticide Base, White Oils, Petroleum, Paraffine Oils, Residues, etc.)

Atlantic Refining Co.
Pennsylvania Refining Co.
Petroleum Specialties, Inc.
S. Schwabacher & Co.
L. Sonneborn Sons

PHOSPHATES

Trisodium, Sodium Pyrophosphate, etc.

American Cyanamid & Chemical Corp.
John A. Chew, Inc.
E. I. du Pont de Nemours & Co.
General Chemical Co.
Monsanto Chemical Works
Victor Chemical Works
Warner Chemical Co.

PYRETHRUM AND DERRIS PRODUCTS

Insect Flowers and Powder, Pyrethrum Extract, Derris Products

Associated Chemists, Inc.
Derris, Inc.
S. B. Penick & Co.
R. J. Prentiss & Co.
McCormick & Co.
McLaughlin, Gormley, King Co.
John Powell & Co.
Whitmire Research Corp.

SILICATES

E. I. du Pont de Nemours & Co.
General Chemical Co.
Philadelphia Quartz Co.
Standard Silicate Co.

SOAP DISPENSERS

Bobrick Mfg. Co.
Clifton Chemical Co.
Fuld Bros.
Hockwald Chemical Co.

SPRAYERS

Breuer Electric Mfg. Co. (Electric)
Fumeral Co. (Spraying Systems)

WAXES AND GUMS

Carnauba, Shellac, Candelilla, etc.

American Cyanamid & Chem. Corp.
Innis, Speiden & Co. (Waxes)
Mantrose Corp. (Shellac)
Twin City Shellac Co. (Shellac)

Professional Directory

Pease Laboratories, Inc.
Est. 1904
39 West 38th Street — New York

Chemical, Bacteriological and Pathological Testing and Research. Special Animal Investigations of Pharmacologic, Toxic or Skin Irritating Properties.

H. A. SEIL, Ph.D. — E. B. PUTT, Ph.C., B.Sc.

SEIL, PUTT & RUSBY, INC.
Analytical and Consulting Chemists
Specialists in the Analysis of Pyrethrum Flowers, Derris Root, Barbasco, or Cube Root—Their Concentrates and Finished Preparations
ESSENTIAL OILS — SOAP
16 East 34th Street, New York, N. Y.

STILLWELL AND GLADDING, Inc.
Analytical and Consulting Chemists
Members Association of
Consulting Chemists and Chemical Engineers
130 Cedar Street — New York City

SOAPS — DETERGENTS
Analyses *Development*
Consultation *Formulas*
HochstadterLaboratories
INCORPORATED
254 West 31st St. — New York City

KILLING
strength of Insecticides
by PEET GRADY METHOD
PYRETHRINS in PYRETHRUM FLOWERS
(by Gnadinger or Seil Method)
We raised and killed more than 1 million flies in the last 2 years
ILLINOIS CHEMICAL LABORATORIES, INC.
5235 WEST 65th STREET — CHICAGO, ILL.

Charles S. Glickman
TECHNICAL DIRECTOR
Manufacturers Testing Laboratories
SPECIALIZING IN
Research—Analyses—Formulae—Plant Design
for
Waxes—Polishes—Soaps—Cosmetics & Leather Finishes, etc.
2 WEST 21st STREET, NEW YORK
CHelsea 2-2370

FOSTER D. SNELL, INC.
Chemists—Engineers
Every form of Chemical Service
305 WASHINGTON STREET — BROOKLYN, N. Y.

Patents—Trade Marks
All cases submitted given personal attention
Form "Evidence of Conception" with instructions for use and "Schedule of Government and Attorneys' Fees"—Free
Lancaster, Allwine & Rommel
PATENT LAW OFFICES
Suite 402, Bowen Building — Washington, D. C.

ALAN PORTER LEE, Inc.
Contracting and Consulting Engineers
Design and Construction of Equipment and Plants for Producing and Processing Fats, Oils, Soaps and Related Products
136 LIBERTY STREET, NEW YORK, N. Y.
Cable Address: "ALPORTLE", New York

Refer To Your 1939

SOAP BLUE BOOK

for F.D.A. Method for Testing of Disinfectants and Antiseptics.

Official N.A.I.D.M. Method for Testing and Grading of Insecticides.

Free with a $3.00 subscription to SOAP.

MAC NAIR-DORLAND CO.
Publishers
254 W. 31st Street — New York, N. Y.

Skinner & Sherman, Inc.
246 Stuart Street, Boston, Mass.
Bacteriologists and Chemists
Disinfectants tested for germicidal value or phenol coefficient by any of the recognized methods.
Research—Analyses—Tests

Index to Advertisers

For product classification see pages 127 *and* 128

* For further details see announcement in 1939 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omission.

Tale Ends

JUST as we were getting ready to write that article that comes up periodically,—"Soap Fat Prices Hit New Low"—along came the war and booted prices right upstairs. The soapers who filled up their tanks a month or two ago with three-cent coconut oil are now in a mighty good spot and stand to make more out of inventory appreciation over the rest of the year than they may out of their soap sales.

* * *

The industry will make little progress toward raising its own prices, we suppose, until all its nice cheap oil stocks are used up. The situation is a strange one, certainly, when salesmen are sent out to sell soap at prices for which the soap could not be duplicated at today's fat prices.

* * *

We are firing the first editorial gun this month in a scientific controversy that may well outrank the current hostilities in Europe before it is settled. We refer, of course, to the article on "Moribund Kill,"—a subject which the insecticide industry has been debating informally for some time past and on which little has appeared in print up to this time.

* * *

The soap and sanitary chemical field seems rapidly to be developing a more acute consciousness of the desirability of modern and attractive package design. We say this based on the dozens of contributions we have had in recent months for our "Products and Packages Page" which are necessarily piling up in the file pending their use.

* * *

Soap starts its fifteenth year of publication this month, with a circulation list that continues to grow without the necessity of such "shot-in-the-arm" methods as bargain rates, combination offers, high-pressure salesmen, etc. Incidentally we employ no solicitors, either high or low-pressure, so it will pay to be a little sceptical of any one so representing himself.

★★★★ SPECIAL EDITION FOR INSECTICIDE MANUFACTURERS EXTRA

ADVERTISEMENT—*This entire page is a paid advertisement.* *Prepared Monthly by U. S. Industrial Chemicals, Inc.*

USI ALCOHOL NEWS USI

October ★ A Monthly Series of Technical Articles for Chemists and Executives ★ 1939

Advertising of Super Pyro Anti-Freeze to Stress No Boil-away

U.S.I.'s 1939-40 Campaign Features Low Cost of Anti-Freeze Protection

Magazines and Posters Used

Scientific tests and nationwide surveys conducted last winter furnish the basis for the 1939-40 anti-freeze campaign for SUPER PYRO, the superior quality anti-freeze manufactured by U. S. Industrial Chemicals, Inc. Through the leading weekly national magazines and striking billboards in the important anti-freeze centers, U.S.I. will broadcast its story to over 20,000,000 motorists.

Gives "All-Winter" Protection

Major points in the advertisements, which emphasize that SUPER PYRO offers "an easy, reliable way to get complete all-winter protection at low cost," are "no boil-away" and "no cracked blocks."

Tests prove that SUPER PYRO will not boil away under normal driving conditions in the modern car, since thermostatic temperature control keeps the engine heat between 155 and 160°. A solution of SUPER PYRO, sufficient to protect to 10 below zero, does not boil even at 185° F. Furthermore, by preventing rust and corrosion, the SUPER PYRO solution is itself protection against over-heating.

Tests Prove Product's Safety

Among the thousands of SUPER PYRO users interviewed in a nationwide survey, not a single one reported a freeze-up. Scientific laboratory tests explain why. When motors containing as little as 15% of SUPER PYRO were exposed to extreme sub-zero temperatures, there was no solid freeze of the cooling solution.

Investigations further showed that with SUPER PYRO at a retail price of $1.00 a gallon (25c per quart) 84% of SUPER PYRO users paid less than $2.00 for all-winter protection as against more than $5.00 which a motorist would have to pay if an expensive brand of anti-freeze were used.

Dealer prices for SUPER PYRO will be standard through every section of the country—54c per gallon on large drums, 60c on the

(Continued on page 4)

Rubber Made Antiseptic By Addition of New Chemicals

NEW YORK, N. Y.—Antiseptic rubber goods—dress shields, toys, baby pants—may soon be extended to include antiseptic rubber sheetings, surgeons' gloves, rubber cases for instruments and similar items, by the introduction of three new chemical compounds designed to render rubber fully antiseptic, according to a manufacturer here.

The new materials are reported to be 3, 3 and 6 times as powerful as Thymol in antiseptic qualities. They are white, odorless crystals, said to be effective in concentrations of 0.5-1.5%, depending on the rubber stock, and to contain no metallic salts.

Rubber products so treated are said to meet with the standard tests for antiseptics as set forth by the Food & Drug Administration.

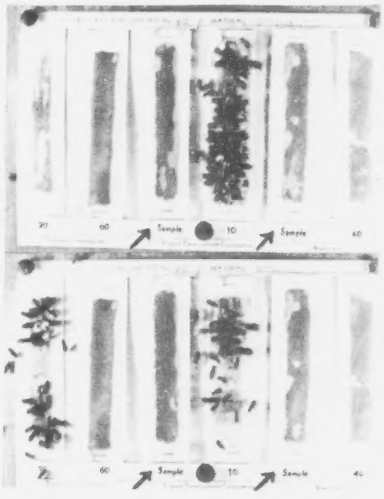
New U.S.I. Insecticide Activator Boosts "Kill Power," Cuts Costs

Solution of Derris Extractives in New U.S.I. Organic Chemical Gives Higher Kill Per Unit Cost, Adds Amazing Repellent Effect

New insecticide formulations, made from currently available active ingredients, are proving many times more effective through addition of a newly developed concentrate manufactured by U. S. Industrial Chemicals, Inc.

DEREX is a solution of derris root extractives in a recently developed auxiliary solvent, Butyl Mesityl Oxide Oxalate. It is offered exclusively by U.S.I. as a raw material for incorporation in liquid insecticidal sprays for use in the household, for livestock, and in many other places where such insecticides are required. DEREX is available in two forms: standard, containing rotenone; and special, containing no rotenone but of the same insecticidal strength.

The information and illustrations in this article have been furnished by an independent laboratory based on experimental work done by it.



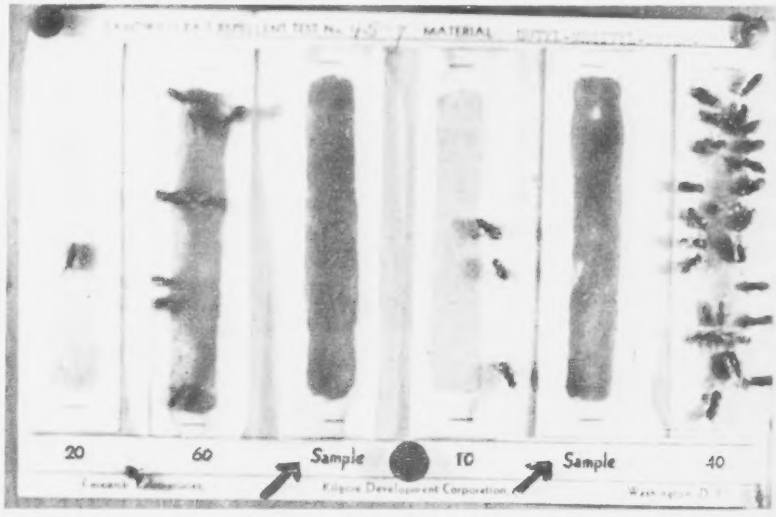
Solvent Adds to Activity

DEREX should not be confused with solutions of rotenone and derris extractives in inert solvents, where the insecticidal activity is due solely to the dissolved substances. Butyl Mesityl Oxide Oxalate acts not only as a solvent in DEREX but also has insecticidal properties of its own. Thus, with DEREX, the manufacturer can obtain higher "kill power" for his sprays without increase in cost, or obtain the same "kill power" at a reduction in cost.

The use of DEREX is not merely limited to pyrethrum-type insecticides. In combination with other synthetic materials, such as the thiocyanate paralytic agents, it has demonstrated similar advantages, namely, higher "kill" and lower cost. This was strikingly demonstrated in recent tests which showed that by the use of DEREX, savings up to 50% in the cost of active ingredients could be accomplished.

A further advantage of adding DEREX to insecticides is that the solvent, Butyl Mesityl Oxide Oxalate is many times more effective and lasting as an insect repellent than

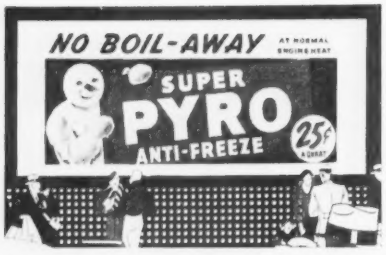
(Continued on page 4)



Remarkable Repellent Action of U.S.I.'s new Butyl Mesityl Oxide Oxalate is clearly shown in the photos of "sandwich bait" tests conducted by an independent laboratory. A 10% concentration in alcohol (sample at arrow) is compared with standard 20, 60, 10 and 40% concentrations of citronellol. Two top photos show flies attacking (1) 10% citronellol after 25 minutes, (2) 10 and 20% citronellol after 50 minutes. Large photo at bottom shows flies gathered on the 40 and 60% citronellol baits after 4 hours and 30 minutes. At no time did the flies touch the 10% "BMOO" sample, under test.

Super Pyro Advertising

(Continued from previous page)



5-gallon and 1-gallon cans, and 65c on the quart cans.

U.S.I. continues its policy of consigning stocks of SUPER PYRO to carefully selected distributors.

The force of the advertising campaign behind SUPER PYRO for this winter, coupled with the satisfactory experience of over 19,000,000 who have already used the product, is expected to set new records for SUPER PYRO popularity.

A handy reference chart for mixtures of ethyl alcohol and water gives boiling points, dew points, freezing points and composition of co-existing phases for percentages of alcohol from zero to 100. Copies of this chart may be secured free of charge by writing U.S.I. Ask for Bulletin AW.

DEREX, Insecticide Activator

(Continued from previous page)

any other material of this type now available. For example, when 5% alcoholic solutions of Butyl Mesityl Oxide Oxalate were tested against the same strength solutions of 20:1 pyrethrum and of oil of citronella, the Butyl Mesityl Oxide Oxalate showed 100% effectiveness against flies for over 19 hours, and the other two products showed only 25% to 75% effectiveness and were entirely exhausted after 2 to 2½ hours. It may, therefore, be expected that similar repellent effect will be carried through to the insecticide when DEREX is incorporated in the formula.

DEREX makes possible for the first time the incorporation of Derris extractives without increasing the odor of the finished insecticide. Because of the unusual solvent power of Butyl Mesityl Oxide Oxalate, the insecticides containing DEREX have an extended shelf life without loss of active principles occurring.

Non-Poisonous to Humans

In spite of its high effectiveness and "kill power" against insects, Butyl Mesityl Oxide Oxalate has been shown by toxicological studies to have no effects when ingested. In addition, topical applications show no effects upon the human skin.

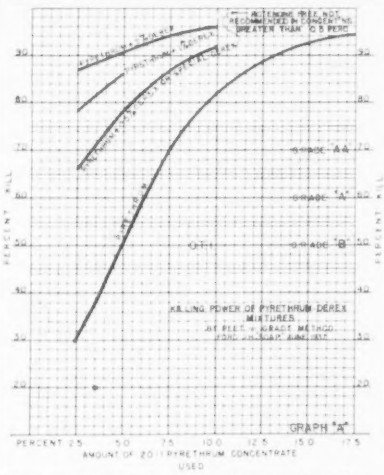
U.S.I. will offer to manufacturers two grades of DEREX which comprise a solution in Butyl Mesityl Oxide Oxalate of (1) derris extractives containing rotenone and (2) derris extractives, rotenone free. For further information write to U.S.I.

The name DEREX is a registered Trade Mark.

Antiseptic Chewing Gum Seals Doom of Mouth Germs

NEW YORK, N. Y.—A new antiseptic chewing gum, described as "a prophylactic gum for mouth hygiene" has been launched by a manufacturer in this city.

The product is said to be able to kill at least 90 per cent of the bacteria present in the mouth within three minutes after chewing starts. "And because chewing keeps the antiseptic in contact with your mouth tissues and membranes for longer than three minutes," points out an advertisement, "opportunity is given to destroy completely the bacteria present."



THIS CHART showing the killing power of Pyrethrum-DEREX Mixtures as determined by the Peet-Grady Method, clearly illustrates the remarkable effectiveness of this new product in increasing the efficiency of pyrethrum-type insecticides. A similar chart, showing the increased killing power of Lethane 384-DEREX Mixtures, is available. Copies may be obtained by writing to U.S.I.

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A blue dye is suitable for coloring leather, paper, celluloid, and wood when used in alcohol solutions, according to the manufacturer. The dye is said to produce bright greenish shades of blue, and to have a considerable degree of fastness to light. (**No. 260a**)

U.S.I.

Filter press paper can be used to protect filter cloth and improve its efficiency, it has been announced. According to the maker, the paper has almost as high a breaking strength when wet as when dry, and retains almost all of the precipitated matter. (**No. 261a**)

U.S.I.

A new kettle is said to conform to ASME regulations for steam-jacket pressures of 60, 100, and 125 pounds per square inch. Capacities range from 30 to 300 gallons, and the kettle can be supplied in different materials to specification, according to the manufacturer's announcement. (**No. 262a**)

U.S.I.

A filling machine automatically delivers liquids into containers, it is reported. The machine is said to have twelve filling stations, and to be capable of filling 175 8-ounce cans per minute by taking them from a supply station by means of star wheels. Manufacturer also states that the machine can be adapted to various heights and diameters of containers. (**No. 263a**)

U.S.I.

Laboratory sinks and table tops can be made from a new white vitrified procelain that is capable of withstanding attack by alkalis and acids, except hydrofluoric, the manufacturer announces. It is said that the material is non-porous and presents a surface that will not crack, oxidize, or discolor. (**No. 264a**)

U.S.I.

Labels can be printed directly on glass, plastic or metal containers, it is reported in announcements of a new process. It is further stated that any number of colors from one to four can be used in the labeling process, and that the label is permanent, and will not loosen or crack. (**No. 265a**)

U.S.I.

Drymet is the trade name of a new commercial anhydrous sodium metasilicate in powder form. The manufacturer reports that it contains practically no water, either combined or uncombined, and that it therefore mixes well with hygroscopic materials such as caustic soda. It is said to be suitable for use in alkaline cleaning compounds. (**No. 266a**)

U.S.I.

Capsule equipment is said to be capable of producing 1485 soft-filled capsules a minute. According to the manufacturer, equipment includes machine for making and delivering gelatine sheets, multiple-cavity molds, and a unit to deliver fill material to the molds. (**No. 267a**)

U.S.I.

A handy pusher for drums or barrels is said to consist of a wooden handle, malleable casting, and four rollers which revolve with the movement of the drum. (**No. 268a**)